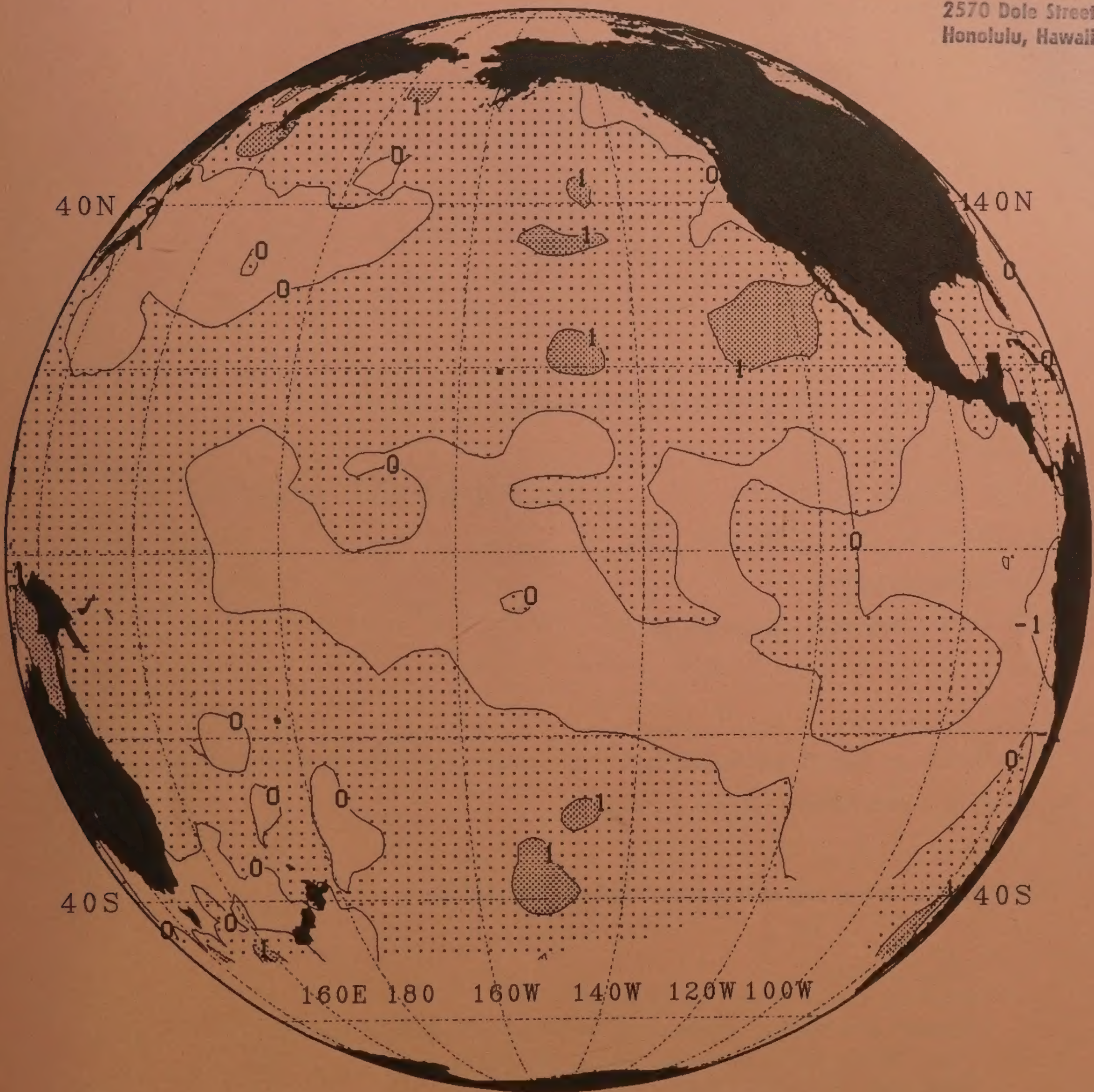
#43

気 象 庁 海 洋 月 報

Monthly Ocean Report

July 1996 (No. 43)



Climate and Marine Department
Japan Meteorological Agency

気象庁 気候・海洋気象部

平成 8 年 7 月

気象庁海洋月報は、気象庁 気候･海洋気象部 海洋課で作成されています。

本月報に関する問い合わせは、

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表紙は、1996年７月の太平洋の月平均海面水温偏差図です。
陰影部は、平年より高温の海域を示しています。

The figure on the front cover shows the monthly mean SST anomalies for July 1996 in the Pacific Ocean.
Areas of positive anomalies are shaded.

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海況の特徴（1996年7月）

太平洋の海況

太平洋赤道域の海面水温は、東部の110゜W以東で平年より0.5℃以上低く、特に南米沖では1℃以上低かった。一方、西部の160゜E以西では、平年より0.5℃以上高かった。中部ではほぼ平年並だった。　エルニーニョ監視海域（4゜S～4゜N、150゜W～90゜W）の海面水温偏差は、-0.1℃だった（第１表、第１図、第６図）。

太平洋の赤道に沿った表層水温断面図では、西部の水温躍層付近に見られる１℃以上の正偏差域及び東部の１℃以上の負偏差域は、ともに、先月に比べて小さくなった。（第９図）

気象庁の海洋気象観測船「凌風丸」は、本年7月本州南方から３゜Nに至る137゜E線に沿った海洋観測を行った。この観測によれば、10゜N～4゜Nでは、水温躍層が平年より浅く、50～250mでは1～3℃の負偏差となっており、9゜N以南の同深度に広く正偏差が見られた本年１月とは異なっていた（図A）。

フィリピン東方では、海面水温が30℃以上の海域が広がり、平年より0.5℃以上高かった。30～40゜Nでは日本付近から170゜Wにかけて、前月に引き続き負偏差域が見られたが、1℃以上の負偏差の海域はほとんどなくなった。ベーリング海からカムチャツカ半島にかけては前月に引き続き0.5℃以上の正偏差であった。150゜W周辺の20～50゜Nでは平年より0.5℃以上高く、また、カリフォルニア半島沖は1℃以上高かった（第６図）。

日本近海の海況

海面水温は、南西諸島周辺及び紀伊半島沖では、前月に引き続き平年より0.5℃前後高かったが、その他は全般に平年より低かった。日本海では1℃以上低い海域が広がり、中部では2℃以上低かった。北海道から関東にかけての太平洋沿岸では、平年より1℃以上低かった（第24図）。

黒潮は、九州から紀伊半島にかけて接岸して流れた後、東に向かい、上旬は三宅島付近を、下旬は八丈島の北を経て、房総半島沖を東に流れていた（第27図）。

本州東方の親潮系の冷水は、沿岸よりの分枝は40.0゜N,143.3゜Eまで、沖合の分枝は39.3゜N,146.0゜Eまで、それぞれ達していた。また、常磐沖の36.7゜N,142.0゜E付近にも親潮系の冷水が見られた（第26図）。

熱帯の気象

対流活動は、10゜Nから25゜Nにかけての西部・中部太平洋、熱帯インド洋、中国南部、カリブ海で活発である一方、140゜E以東の赤道太平洋と120゜W以東のＩＴＣＺで不活発であった。赤道太平洋上空の風は、130゜W以西で、200hPaでは西風偏差、850hPaでは東風偏差になっていた。熱帯太平洋の海面気圧は、170゜W以西で負偏差、以東で正偏差で、SOIは+0.7であった。明瞭な季節内変動の東進が見られ、上旬にインド洋で、中旬には海洋大陸付近で対流活動が活発化した（第１表、第3～5図、第12図）。

HIGHLIGHTS July 1996

Pacific

In the equatorial Pacific, negative sea surface temperature (SST) anomalies lower than -0.5 °C were observed east of 110°W, especially off the South American Coast where anomalies were lower than -1°C, while SSTs were more than 0.5°C above normal west of 160°E. SSTs were near normal in the central equatorial Pacific. The SST index for region B (Fig. 1) was -0.1°C (Table 1 and Figs. 1 and 6).

In the vertical section along the equator, the area with positive/negative subsurface temperature anomalies more/lower than +1°C/-1°C along the thermocline in the western/eastern Pacific have diminished from June to July (Fig. 9).

From 18 to 31 July, R/V Ryofu Maru of the JMA made hydrographic observations along the meridian of 137°E from the south of Japan to 3°N. The depth of the thermocline was shallower than normal between 10°N and 4°N and negative subsurface temperature anomalies of -1 to -3°C was observed from the depth of 50 to 250 m. This is in contrast to the Ryofu Maru's observations in January/February 1996, when positive subsurface temperature anomalies more than 1°C prevailed south of 9°N reflecting a deeper-than-normal thermocline depth (Fig.A).

SSTs over 30°C (positive anomalies more than 0.5°C) prevailed east of the Philippines. In the North Pacific, negative SST anomalies continued to be observed between 30°N and 40°N from around Japan eastward to 170°W, however, the area with negative anomalies lower than -1°C were hardly found. SSTs continued to be more than 0.5°C above normal from the Bering Sea to the Kamchatka Peninsula. SSTs were above normal between 20°N and 50°N around 150 °W and positive SST anomalies more than 1°C were observed off Baja California (Fig. 6).

Seas adjacent to Japan

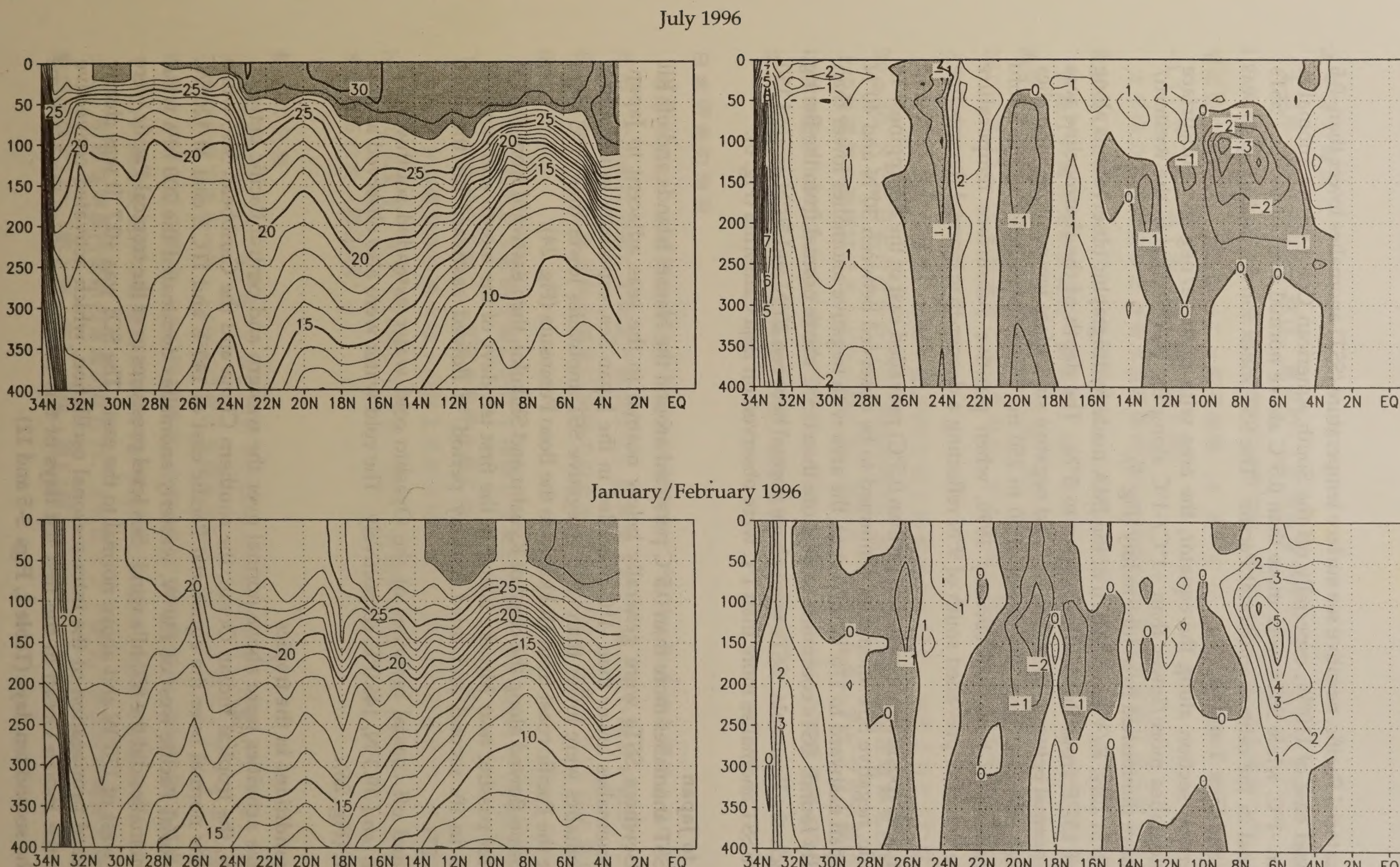
Positive SST anomalies more than 0.5°C persisted around the Nansei Islands and off Kii Peninsula. Elsewhere SSTs were generally below normal in the seas adjacent to Japan. Negative SST anomalies lower than -1°C prevailed in the Japan Sea, especially in its central part where anomalies were lower than -2°C. Negative SST anomalies lower than -1°C were observed along the Pacific coast from Hokkaido to the Boso Peninsula (Fig. 24).

The Kuroshio flowed along the coast of Kyushu and Shikoku, then eastward from the Kii Peninsula. After passing near Miyake Island in the first ten days of the month and north of Hachijo Island in its second and third ten-day period, it flowed eastward off the Boso Peninsula (Fig. 27).

Coastal and off coastal branches of the Oyashio cold water extended southward to 40.0°N, 143.3°E and 39.3°N, 146.0°E, respectively. The cold water were also observed around 36.7°N, 142.0°E (Fig. 26).

Atmospheric conditions in the tropics

Convective activities were above normal over the western and central Pacific between 10°N and 25°N, the tropical Indian Ocean, the southern China and the Caribbean Sea, while they were below normal over the equatorial Pacific east of 140°E and ITCZ east of 120°W. Over the equatorial Pacific west of 130°W, westerly anomalies dominated the 200 hPa wind and easterly anomalies did the 850 hPa wind. Sea level pressures over the tropical Pacific were below normal west of 170°W and above normal to the east. The SOI was +0.7. It was clearly seen the eastward propagation of the intra-seasonal oscillation, which activated convective activities over the Indian Ocean in the first ten days of this month and over the Maritime Continent in the second ten days (Table 1, Figs. 3-5 and 12).



図－A　凌風丸による137˚Eに沿う表層水温（左）及び偏差（右）断面図（上：1996年7月、下：1996年1/2月）

Fig. A　Depth-latitude sections of subsurface temperature (left) and anomalies (right) along 137°E for July 1996 (top), and January/February 1996 (bottom) observed by R/V Ryofu Maru of JMA. Contour interval is 1°C (left) and 0.5°C (right). Values greater than 28°C (left) and less than 0°C (right) are shaded. Anomalies are computed from the 1967-1990 base period means.

DATE	SEA SURFACE TEMPERATURE AND ANOMALY (°C)								SEA LEVEL ANOMALY (cm)					
	Region D 14N-Eq. 130E-150E		Region A 4N-4S 160E-150W		Region B 4N-4S 150W-90W		Region C Eq.-10S 90W-80W		Yap 10N,138E	Rabaul 4S,152E	Majuro 7N,171E	Tarawa 1N,173E	Christ-mas 2N,157W	Santa Cruz 1S, 90W
AUG 95	29.8	+0.7	28.4	0.0	24.3	-0.3	20.5	-0.1	2.8	13.7	6.7	-3.3	-7.8	-1.4
SEP 95	29.7	+0.5	28.1	-0.2	24.0	-0.6	20.7	+0.4	8.0	15.5	7.6	-2.4	-12.5	-1.8
OCT 95	29.8	+0.5	28.0	-0.4	23.9	-0.7	20.4	-0.3	12.1	14.2	4.5	1.1	-4.4	-3.8
NOV 95	29.7	+0.5	27.9	-0.5	23.9	-0.7	21.5	0.0	14.6	13.1	10.9	-1.4	-8.2	-2.1
DEC 95	29.5	+0.6	28.0	-0.2	24.2	-0.7	21.9	-0.7	12.1	16.2	3.4	1.0	-6.2	-4.8
JAN 96	29.0	+0.5	27.9	-0.1	25.0	-0.4	24.1	-0.2	9.2	13.7	7.9	5.5	-2.7	-3.0
FEB 96	28.6	+0.3	27.6	-0.4	25.7	-0.5	26.0	+0.3	9.7	14.0	5.9	4.2	-3.1	6.1
MAR 96	28.8	+0.4	27.8	-0.3	26.7	-0.2	25.9	0.0	8.2	11.8	-3.7	6.1	0.3	1.0
APR 96	29.3	+0.5	28.1	-0.1	26.7	-0.4	24.1	-1.0	-4.4	12.9	5.0	2.6	-2.8	-4.4
MAY 96	29.6	+0.5	28.5	0.0	26.2	-0.4	22.9	-1.0	-8.8	14.2	7.8	7.9	-0.7	-3.7
JUN 96	29.7	+0.4	28.6	0.1	25.7	-0.4	21.5	-1.2	2.5	10.1	4.4	5.1	-0.6	-5.1
JUL 96	29.8	+0.6	28.4	-0.1	25.1	-0.1	20.4	-1.2						

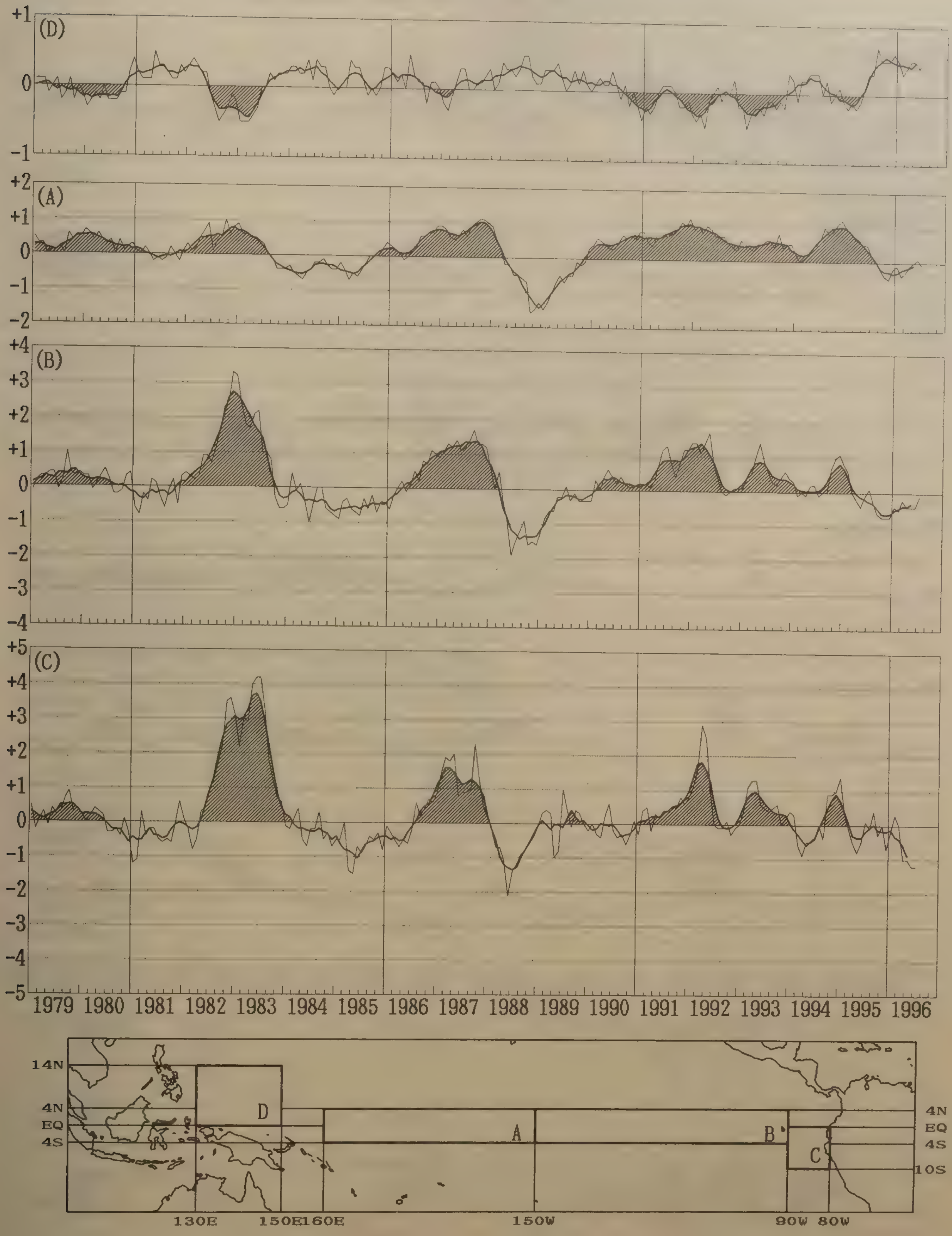
第１表（ａ）　エルニーニョ監視指数

Table 1 (a)　El Niño monitoring indices. Data sources are the SOC for ISLP-Pac, Department of Oceanography, University of Hawaii for the sea level anomaly. All the data of sea level anomaly has been revised.

DATE	SOI	SEA LEVEL PRESSURE ANOMALIES		HIGH CLOUD AMOUNT INDEX			EQUATORIAL ZONAL WIND INDEX				
		TAHITI 17°33'S, 149°37'W	DARWIN 12°24'S, 130°52'E	HCLD-PH 20N-10N 110E-140E	HCLD-MC 5N-5S 110E-135E	HCLD-DL 5N-5S 170E-170W	U200-IN 5N-5S 80E-100E	U200-CP 5N-5S 180 -125W	U850-WP 5N-5S 160E-175W	U850-CP 5N-5S 170W-135W	U850-EP 5N-5S 130W-100W
AUG 95	0.0	0.4	0.3	0.3	0.0	-1.1	0.0	1.4	-1.3	-1.5	-0.9
SEP 95	0.2	0.4	0.0	1.4	0.7	-1.0	-2.0	1.5	-0.9	-1.0	-0.1
OCT 95	-0.3	-0.7	-0.5	0.1	0.2	-1.0	-0.7	0.6	-1.2	-0.7	0.1
NOV 95	0.1	0.1	-0.1	0.1	1.4	-1.2	-2.1	0.8	-1.1	-0.8	-0.8
DEC 95	-0.5	-0.9	0.0	4.0	1.2	-1.2	-0.3	-0.1	-1.0	-0.3	0.3
JAN 96	0.8	1.0	-0.7	1.6	1.5	-1.3	-1.0	0.8	-1.2	-1.2	0.0
FEB 96	0.1	-0.3	-0.5	1.7	1.4	-1.1	-0.7	0.4	-1.1	-1.4	-0.6
MAR 96	0.7	1.0	-0.3	0.3	-0.4	-1.2	-0.2	0.0	-1.1	-1.5	-0.3
APR 96	0.8	0.5	-0.5	2.4	0.6	-0.7	-1.3	1.1	-1.6	-1.1	-0.5
MAY 96	0.3	1.2	1.2	0.6	0.0	-0.6	-1.3	0.8	-1.0	-1.3	0.3
JUN 96	1.4	1.6	-0.2	-1.4	0.4	-0.6	0.8	1.0	-1.4	-2.0	0.5
JUL 96	0.7	0.6	-0.6	0.8	0.1	-0.7	-0.3	1.3	-1.4	-2.1	-0.1

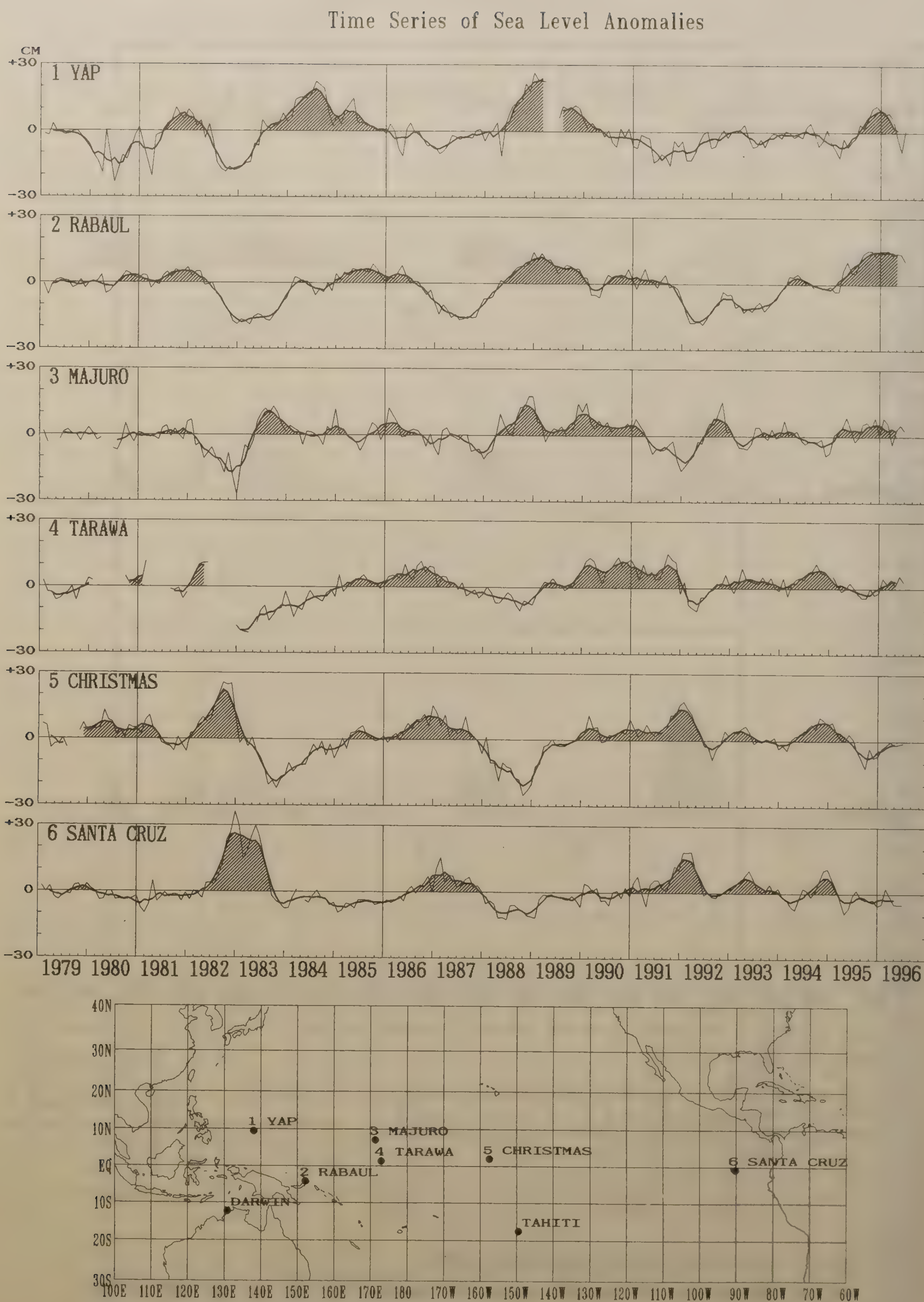
第１表（ｂ） エルニーニョ監視指数（続き）
Table 1 (b) El Niño monitoring indices (continued).

Time Series of Equatorial Pacific SST Anomalies



第1図　太平洋赤道域の海面水温偏差時系列図

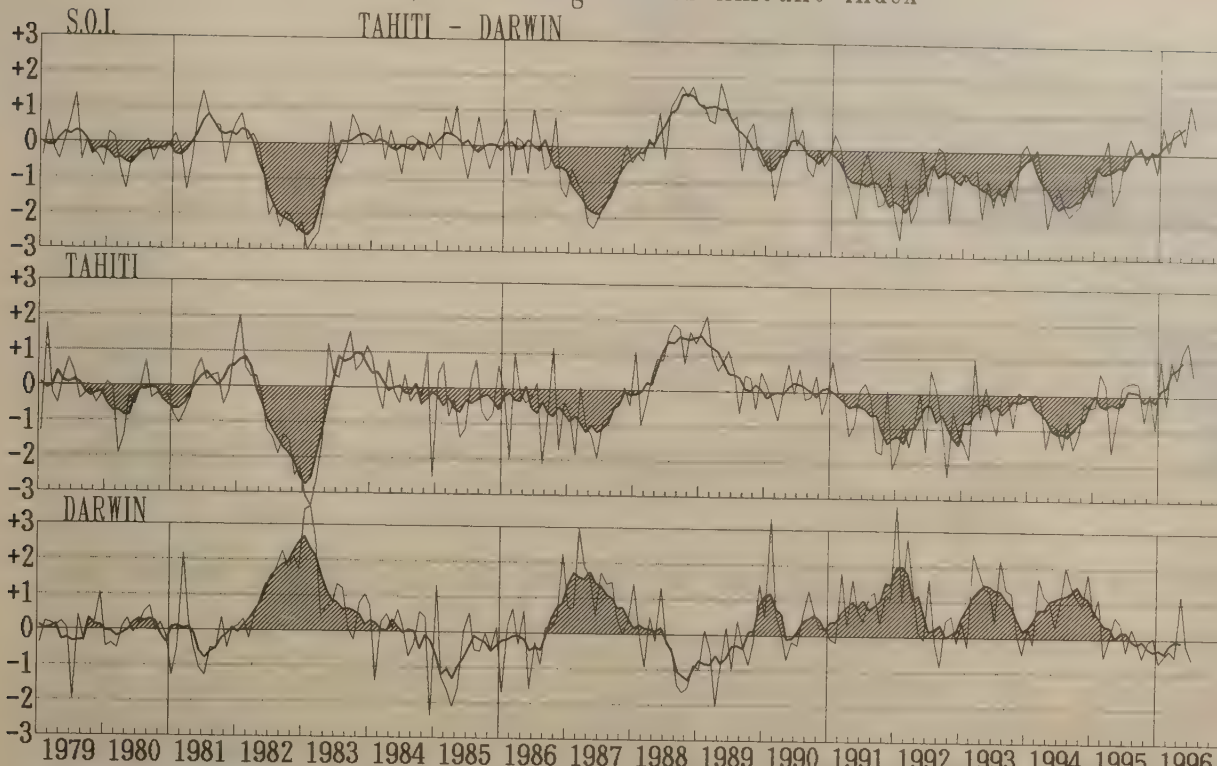
Fig.1 Time series of monthly mean SST anomalies (°C) in the equatorial Pacific Ocean for the areas indicated at the bottom.
Thin lines show the monthly means and thick lines their 5-month running means. Positive anomalies (A, B, C) and negative anomalies (D) are shaded. Anomalies are computed from the JMA climatology (1961-1990).



第2図　太平洋月平均海面水位偏差時系列図

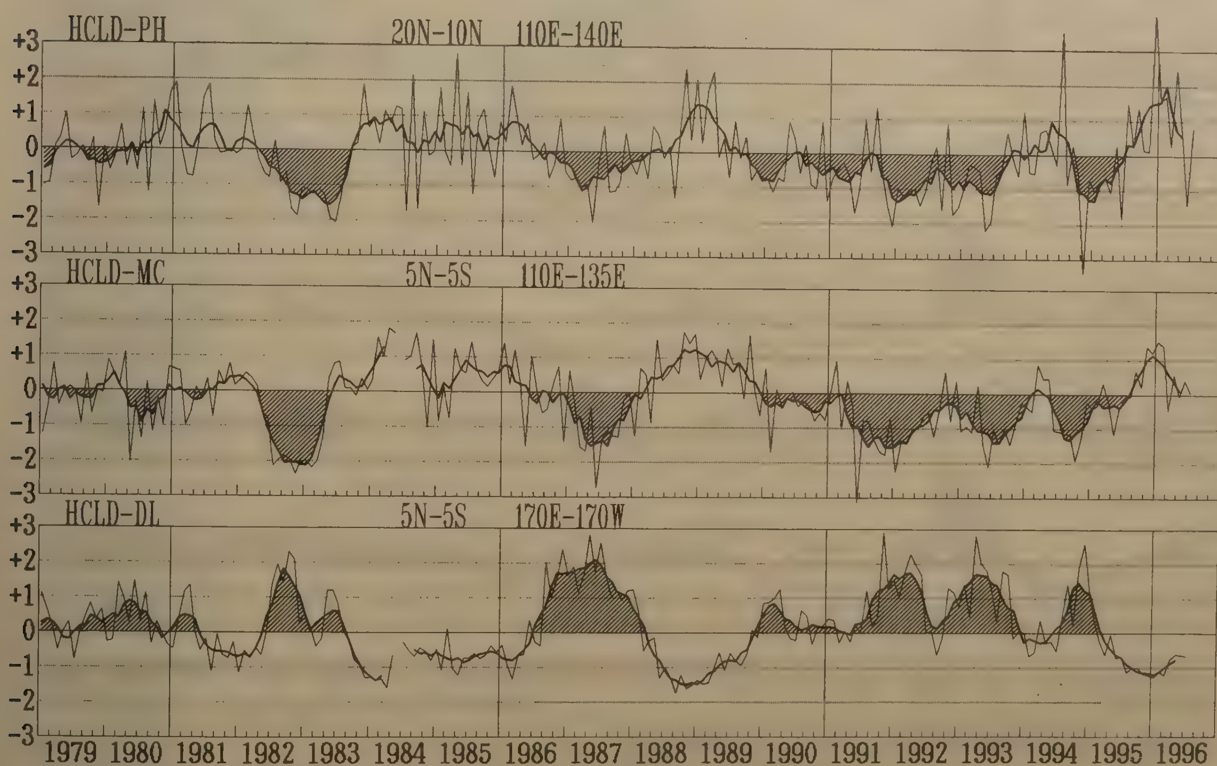
Fig.2 Time series of sea level anomalies computed from 1976-1990 monthly mean values obtained from the stations indicated at the bottom. Thin lines show the monthly mean and thick lines their 5-month running means. Positive anomalies are shaded.

Time Series of SOI and High-Cloud Amount Index



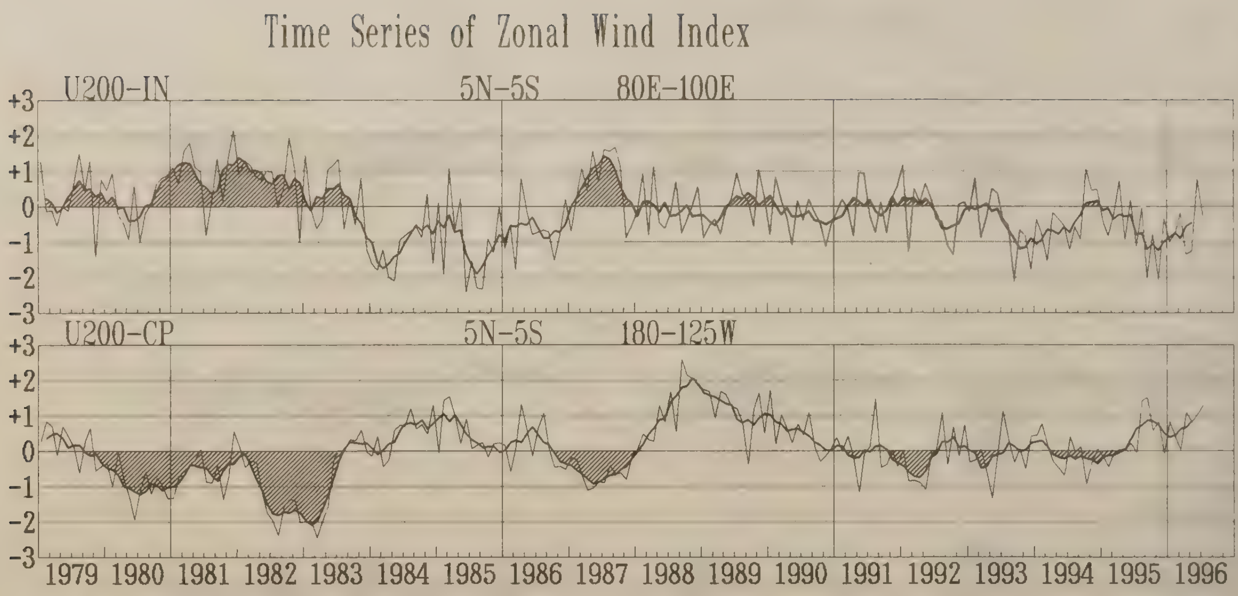
第3図　南方振動指数及び海面気圧偏差時系列図

Fig.3 Time series of the Southern Oscillation Index (top) and monthly mean sea level pressure standardized anomalies at Tahiti (middle) and Darwin (bottom). Thin lines show the monthly mean and thick lines their 5-month running means. Negative anomalies (top, middle) and posotive anomalies (bottom) are shaded. Normals and standard deviations are computed from 1961-1990 base periods.



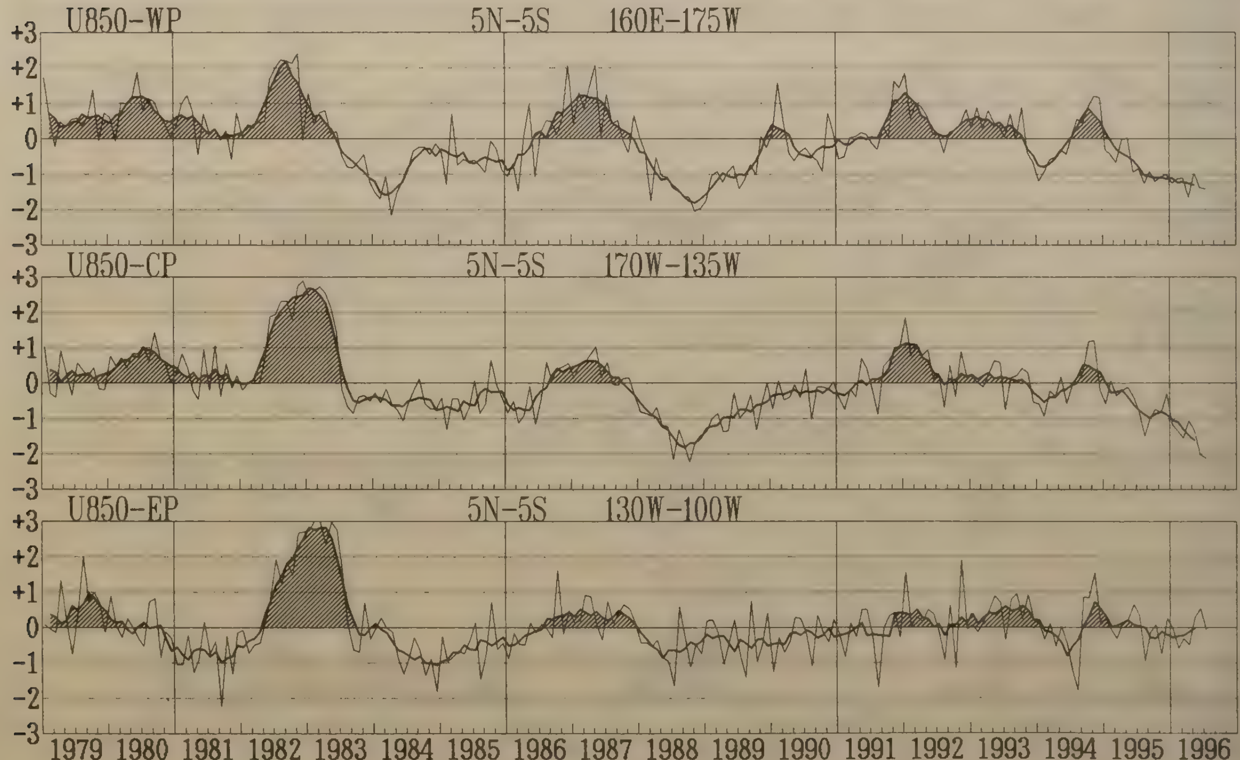
第4図　月平均上層雲量指数時系列図

Fig.4 Time series of high-cloud amount index averaged over the area 20°N-10°N, 110°E-140°E (top), 5°N-5°S, 110°E-135°E (middle), and 5°N-5°S, 170°E-170°W (bottom). Thin lines show the monthly mean and thick lines their 5-month running means. Negative anomalies (top, middle) and positive anomalies (bottom) are shaded. Normals and standard deviations are computed from 1978-1990 base periods.



第5図-1　赤道域東西風指数(200ｈＰａ)時系列図

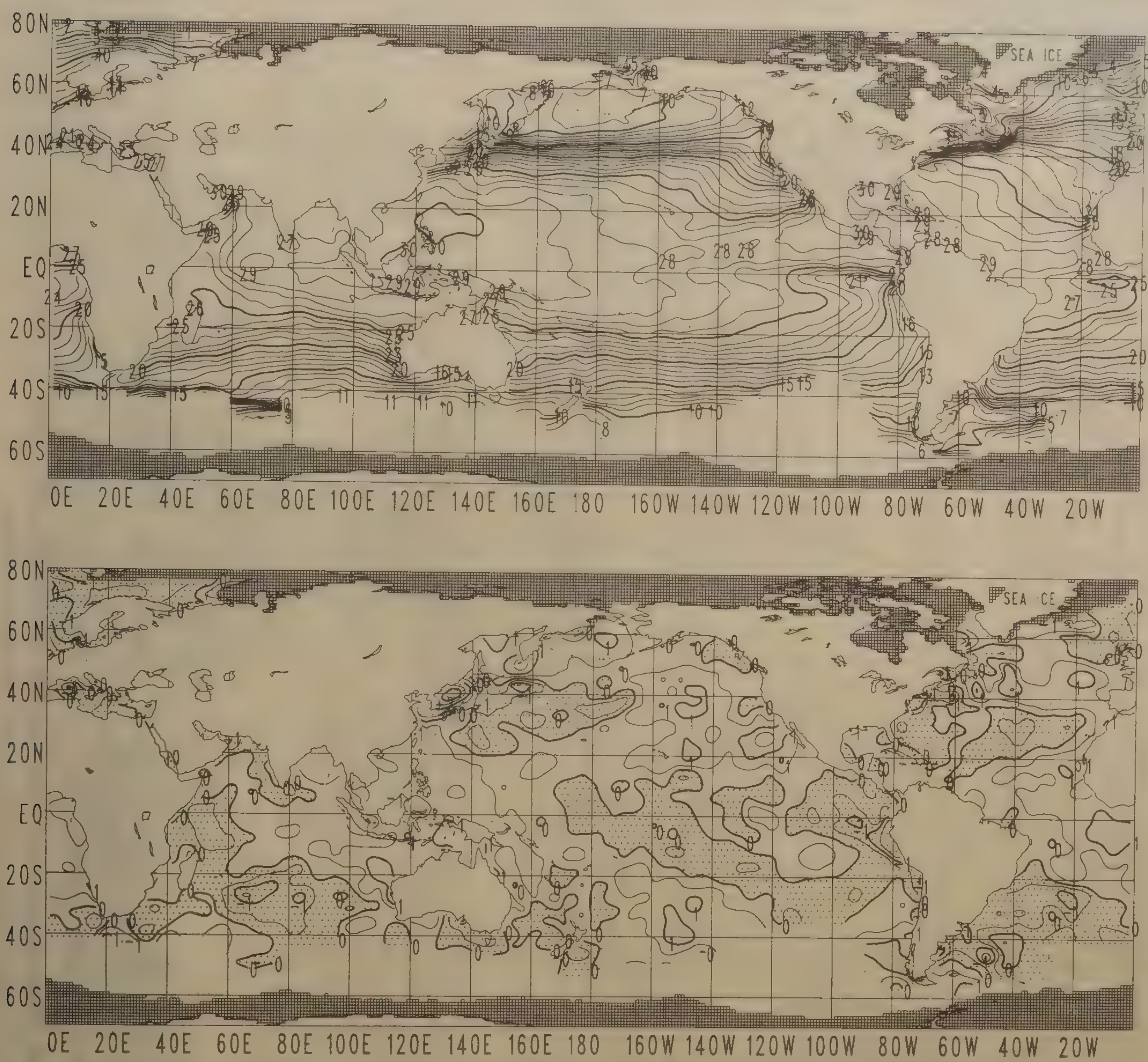
Fig.5-1 Time series of 200hPa zonal wind index averaged over the areas of 5°N-5°S, 80°E-100°E (top), and 5°N-5°S, 180°-125°W (bottom).
Thin lines show the monthly mean and thick lines their 5-month running means.
Positive anomalies (top) and negative anomalies (bottom) are shaded.
Normals and standard deviations are computed from 1979-1990 base periods.



第5図-2　赤道域東西風指数(850ｈＰａ)時系列図

Fig.5-2 Time series of 850hPa zonal wind index averaged over the areas of 5°N-5°S, 160°E-175°W (top), 5°N-5°S, 170°W-135°W (middle), and 5°N-5°S, 130°W-100°W (bottom). Thin lines show the monthly mean and thick lines their 5-month running means. Positive anomalies are shaded.
Normals and standard deviations are computed from 1979-1990 base periods.

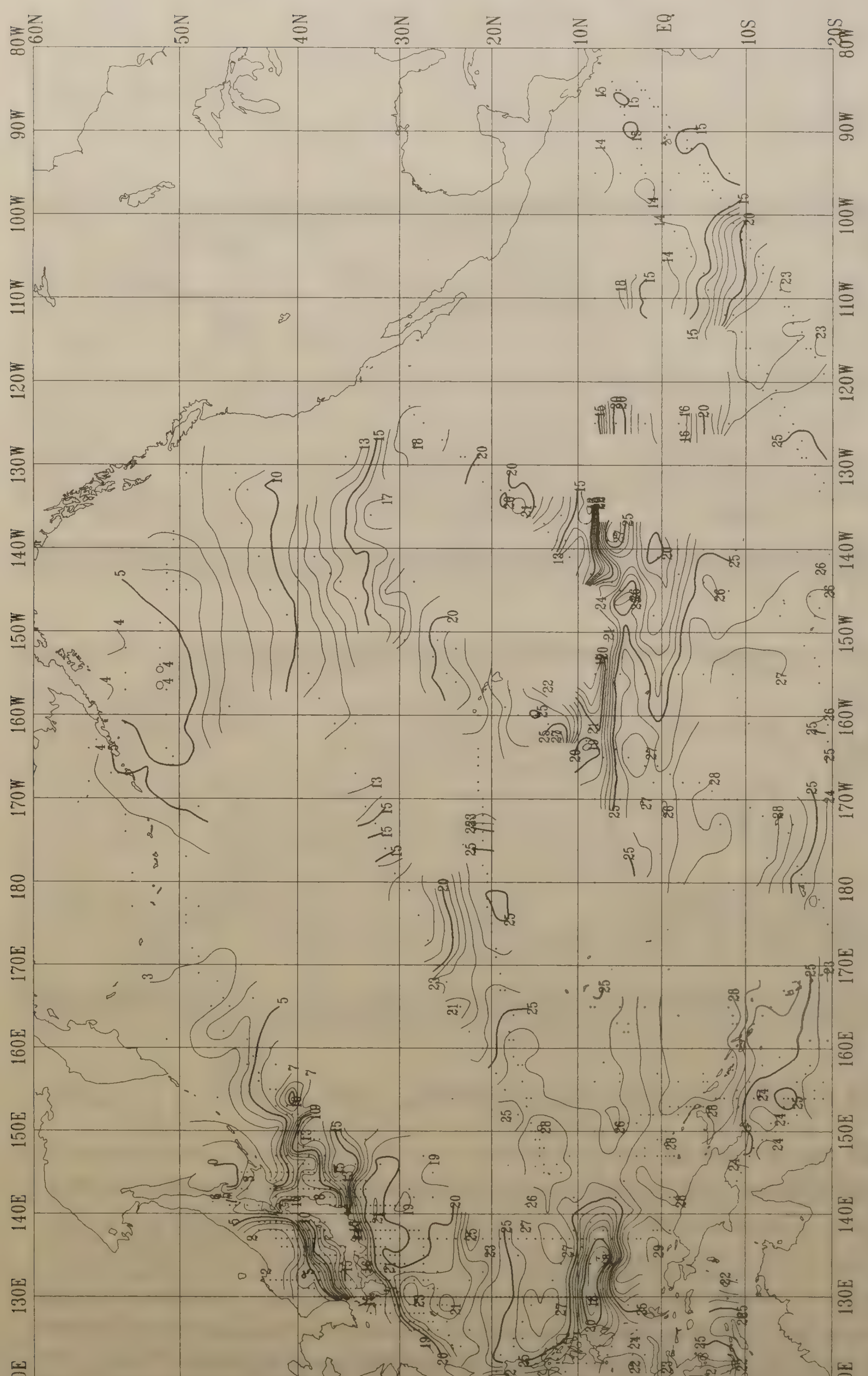
SST & Anomalies in the Global Ocean



第6図　全球月平均海面水温図（上）及び偏差図（下）（1996年 7月）

Fig.6 Monthly mean sea surface temperature over the global ocean (top) and anomalies (bottom) for JUL 1996. Anomalies are computed from the JMA climatology (1961-1990) (Marine Department of JMA, 1991, Climatic charts of sea surface temperatures of the western North Pacific and the global ocean). Contour interval is 1°C (top) and additional anomaly contours of ±0.5°C are shown as thin lines. Negative anomalies are spotted. Maximum coverage of sea ice is shaded. Data sources for sea ice are U.S. National Ice Center (polar regions) and JMA (the Sea of Okhotsk).

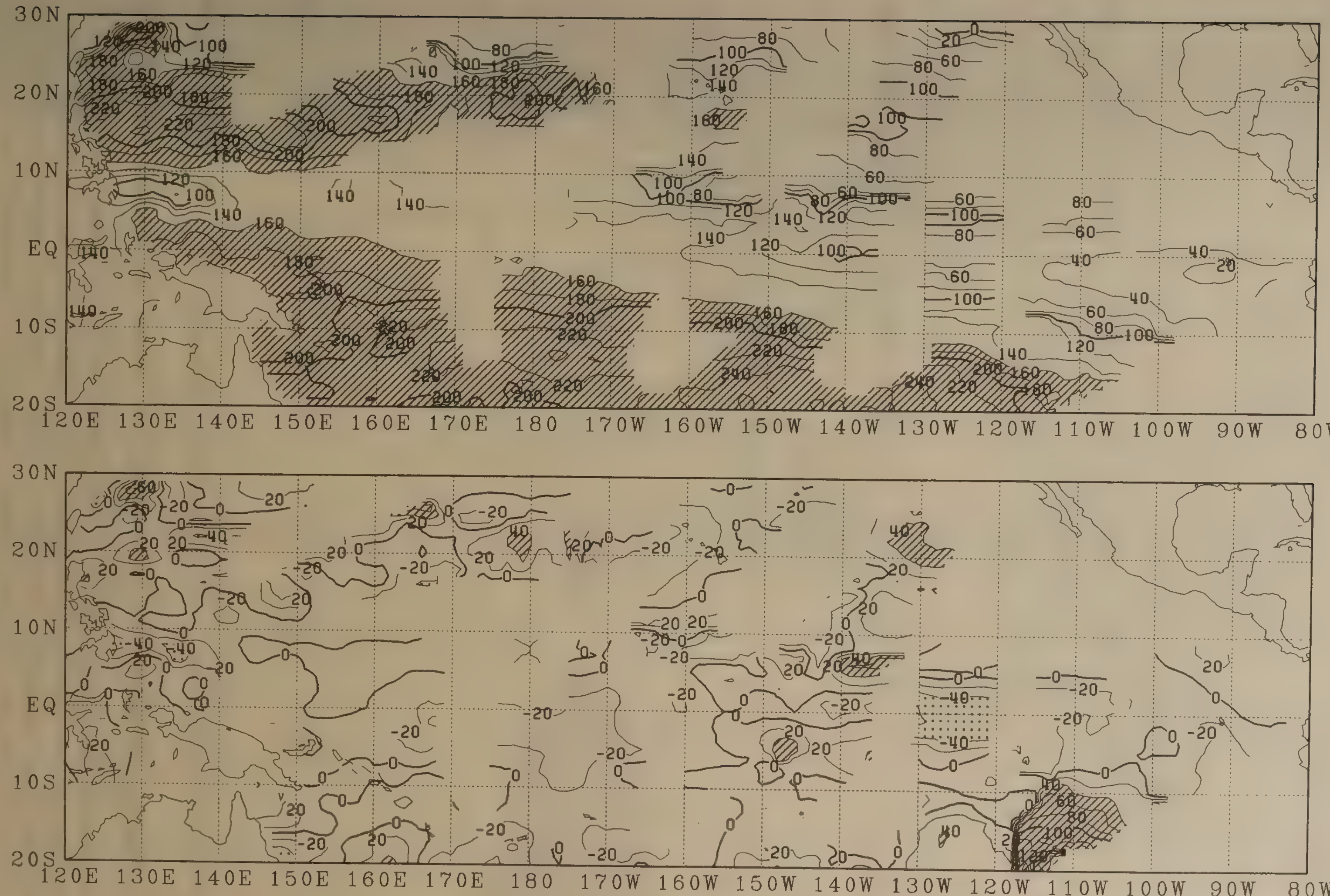
100m Temperature in the Pacific Ocean



第7図　太平洋表層水温(深さ100m)図 (1996年 7月)

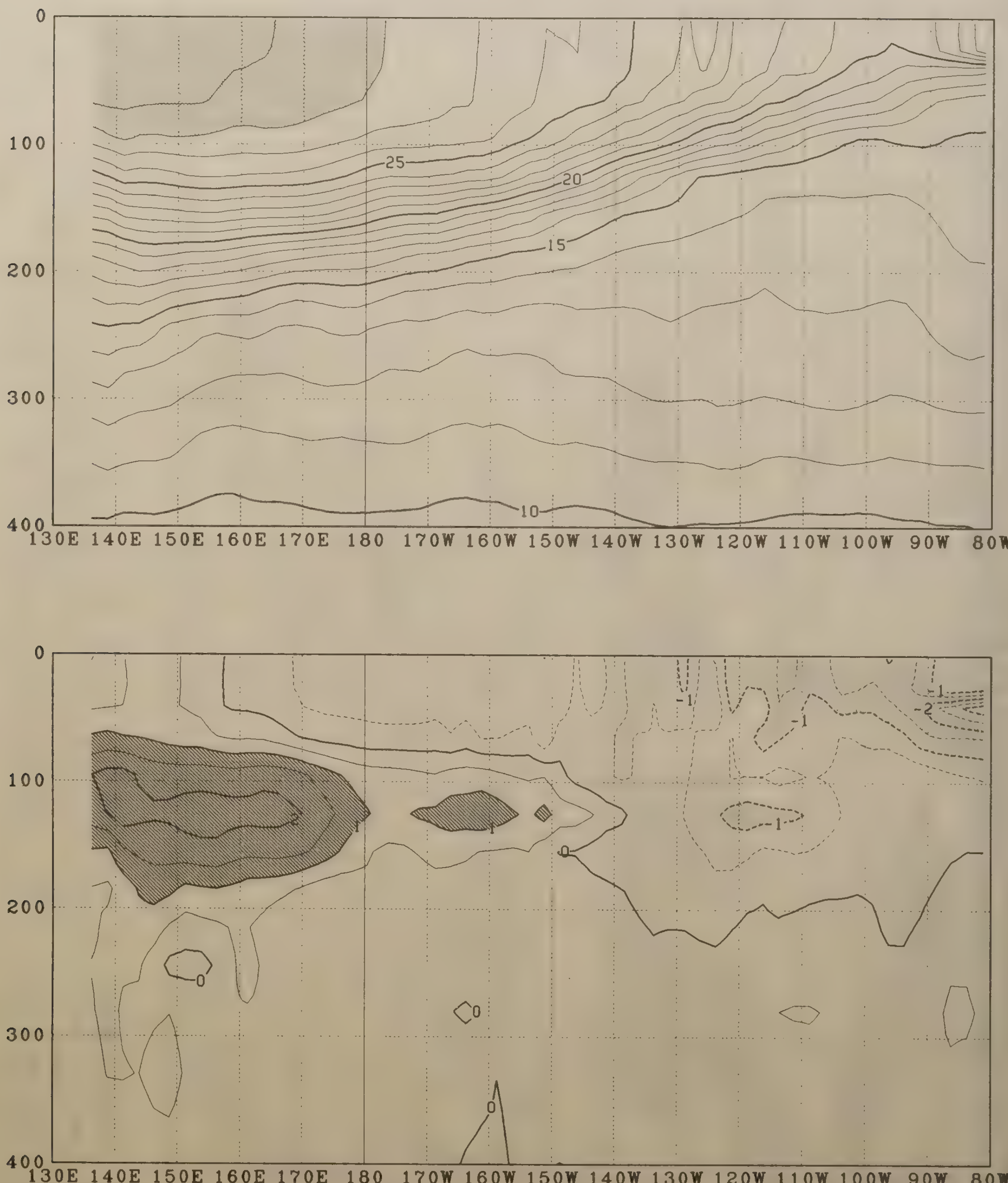
Fig.7 Subsurface (100m) temperatures in the Pacific Ocean for JUL 1996. Contour interval is 1°C. Observation points are denoted by dots.

Depth of 20C & Anomalies in the Pacific Ocean



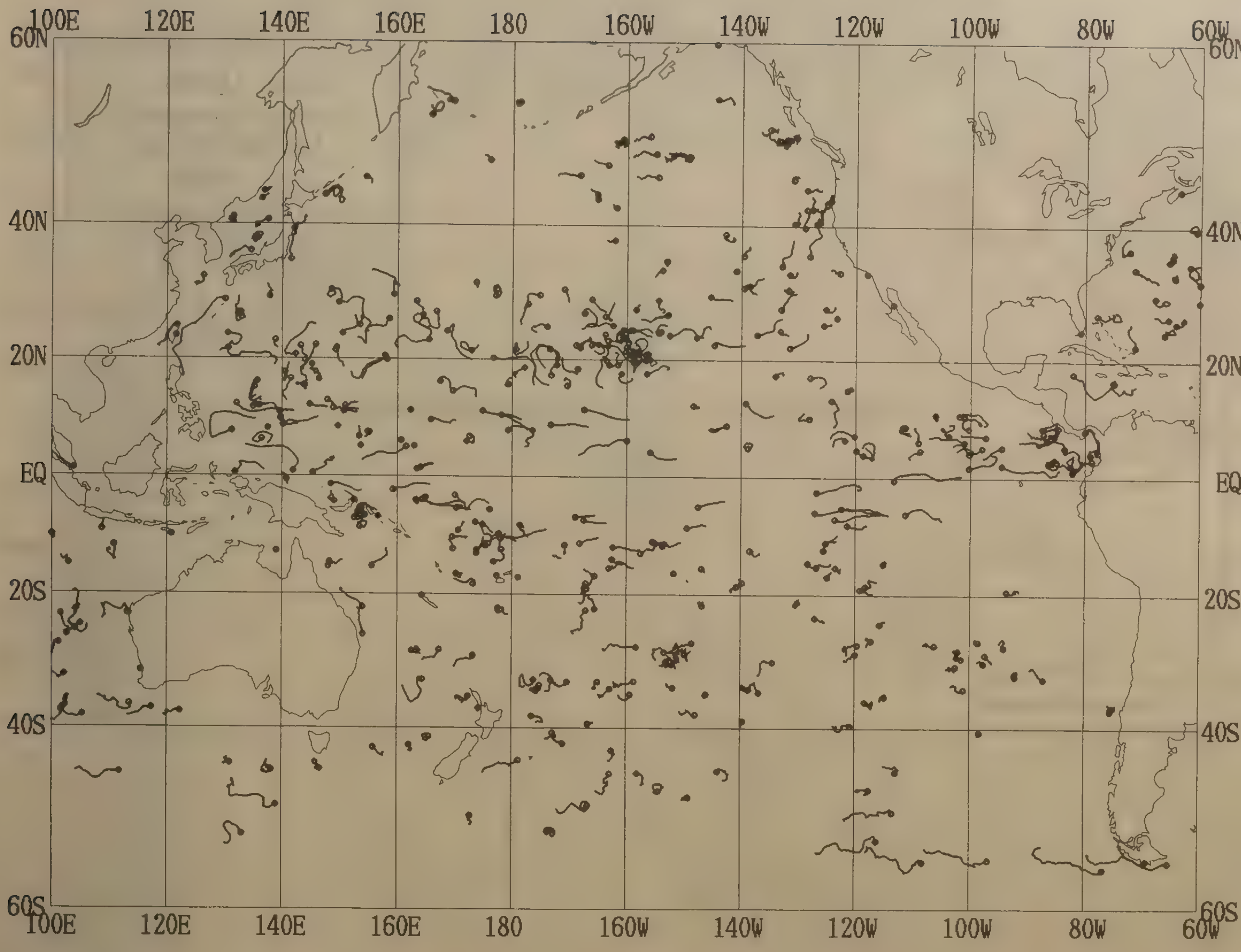
第8図　太平洋20℃深度図（上）及び偏差図（下）（1996年 7月）
Fig.8 Depth of the 20°C isotherm in the Pacific Ocean (top) and anomalies (bottom) for JUL 1996. Anomalies are computed from the climatology (Levitus, 1982, Climatological Atlas of the World Ocean, NOAA). Contour interval is 20m. Values greater than 160m in top panel are shaded. In bottom panel values greater than +40m are shaded and values less than -40m are spotted.

Depth-Longitude Sections of Equatorial Temperature & Anomalies



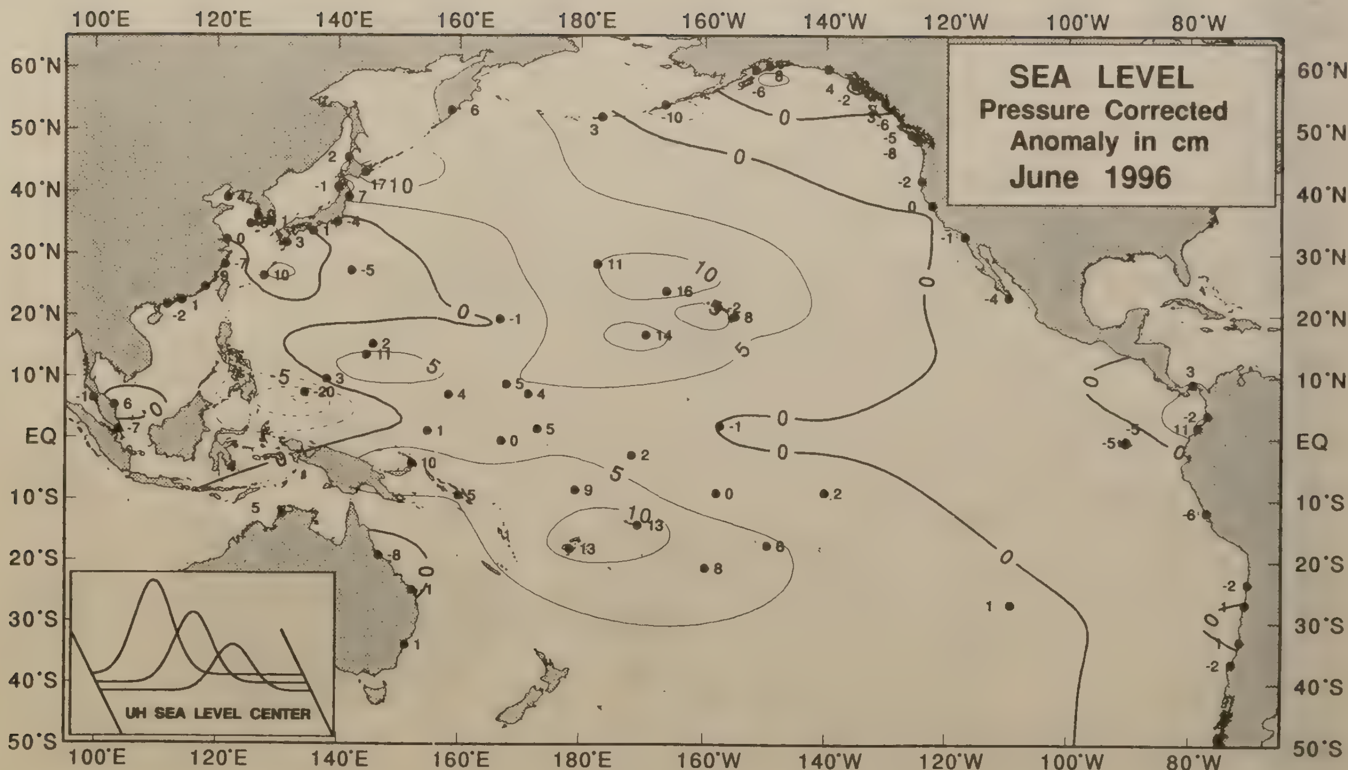
第9図　太平洋赤道に沿う表層水温（上）及び偏差（下）の深度－経度断面図（1996年 7月）

Fig.9 Depth-longitude sections of temperature (top) and anomalies (bottom) along the equator in the Pacific Ocean for JUL 1996. Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C (top) and 0.5°C (bottom). Values greater than 28°C in top panel are shaded. In bottom panel values greater than 1°C are shaded and values less than -1°C are spotted. Anomalies are computed from 1987-1995 base period means.



第10図　太平洋ブイ流跡図(1996年 7月)

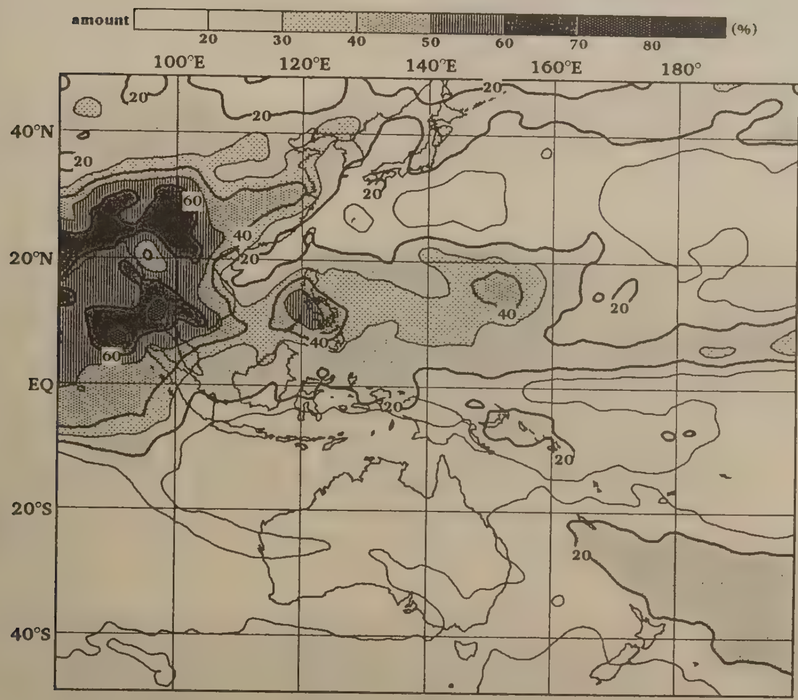
Fig.10　Movements of drifting buoys in the Pacific Ocean during JUL 1996.　Each track is for one buoy. Small circles represent last positions for the month.

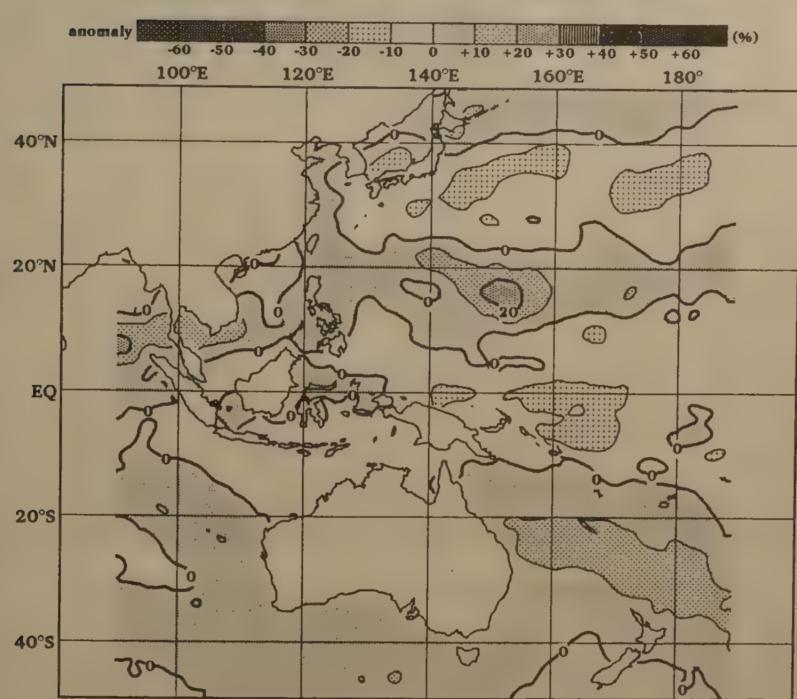


第11図　太平洋海面水位偏差図（ 1996年 6月 ）

Fig.11 Monthly sea level anomalies for JUN 1996 obtained from mean sea level (1975-1986) adjusted for atmospheric pressure.
This figure is prepared by the SOC of ISLP-PAC, Dept. of Oceanography, Univ. of Hawaii.

High-Cloud Amount & Anomalies

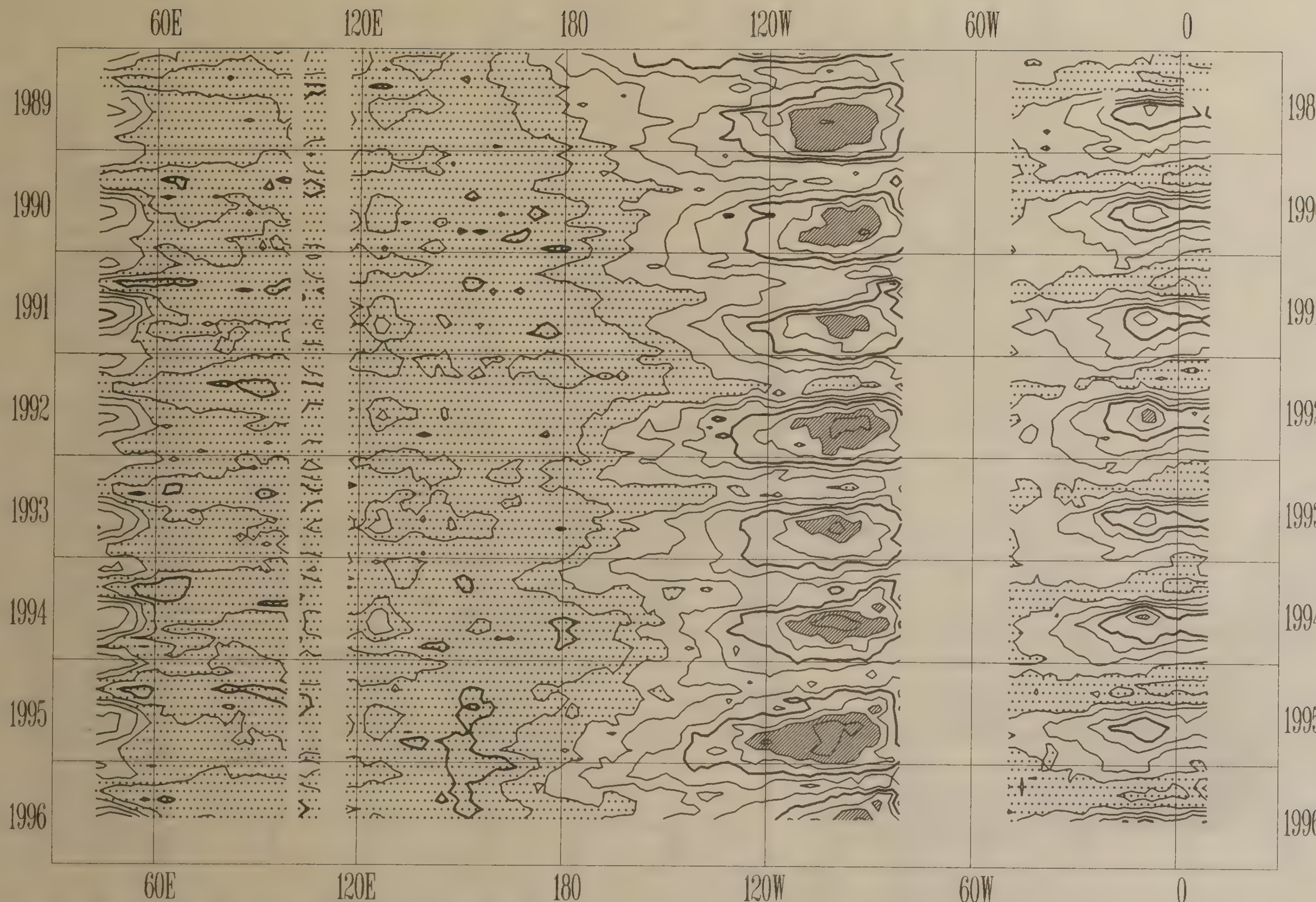




第12図　西太平洋月平均上層雲量分布図及び偏差図（1996年 7月）

Fig.12 Monthly mean of the high-cloud amount (%, top) and its anomalies (%, bottom) in the western Pacific for JUL 1996. Contour interval is 10%. Anomalies are computed from 1978-1990 base period means.

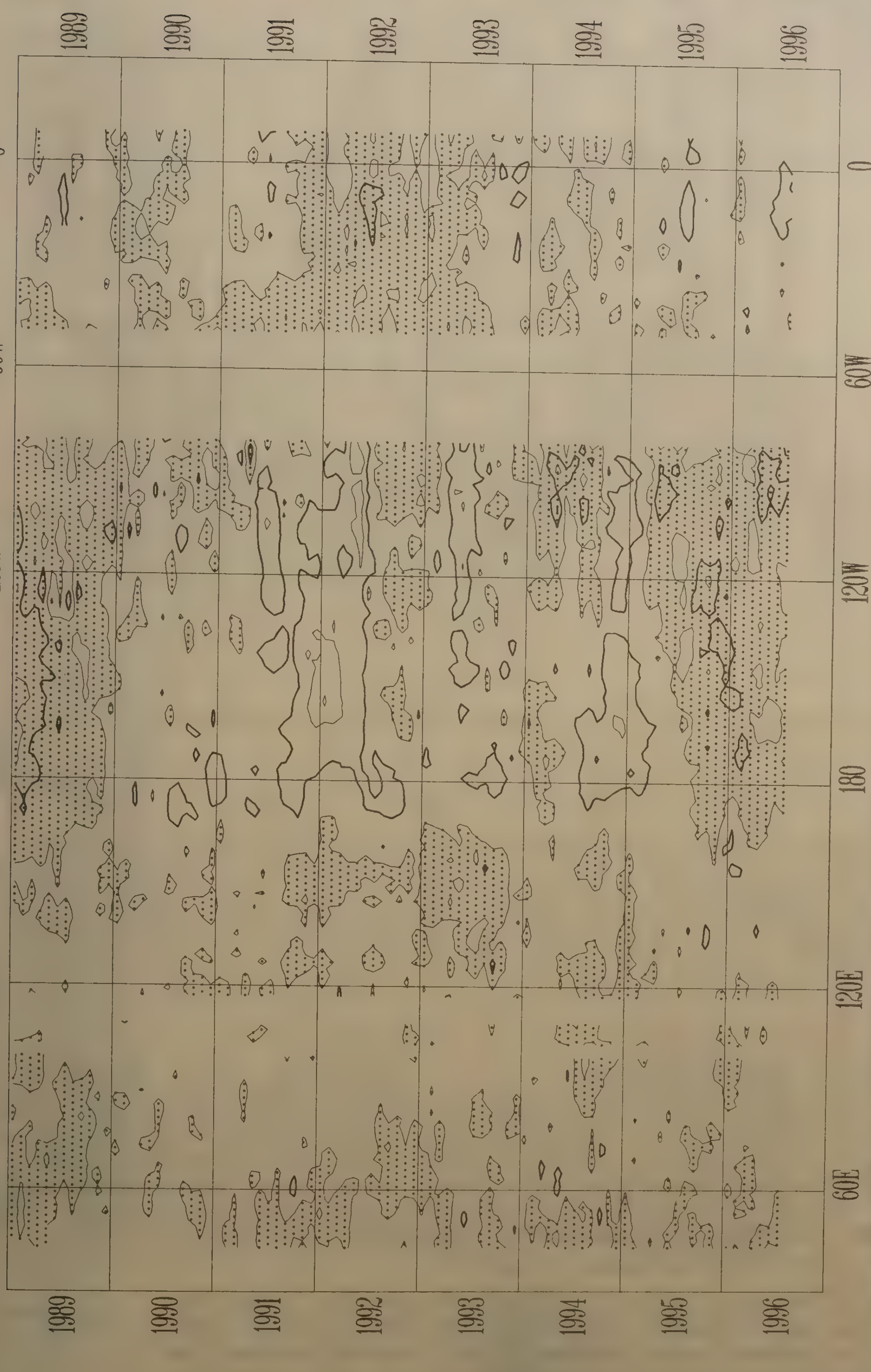
Time-Longitude Section of SST



第13図　赤道に沿う海面水温の時間－経度断面図

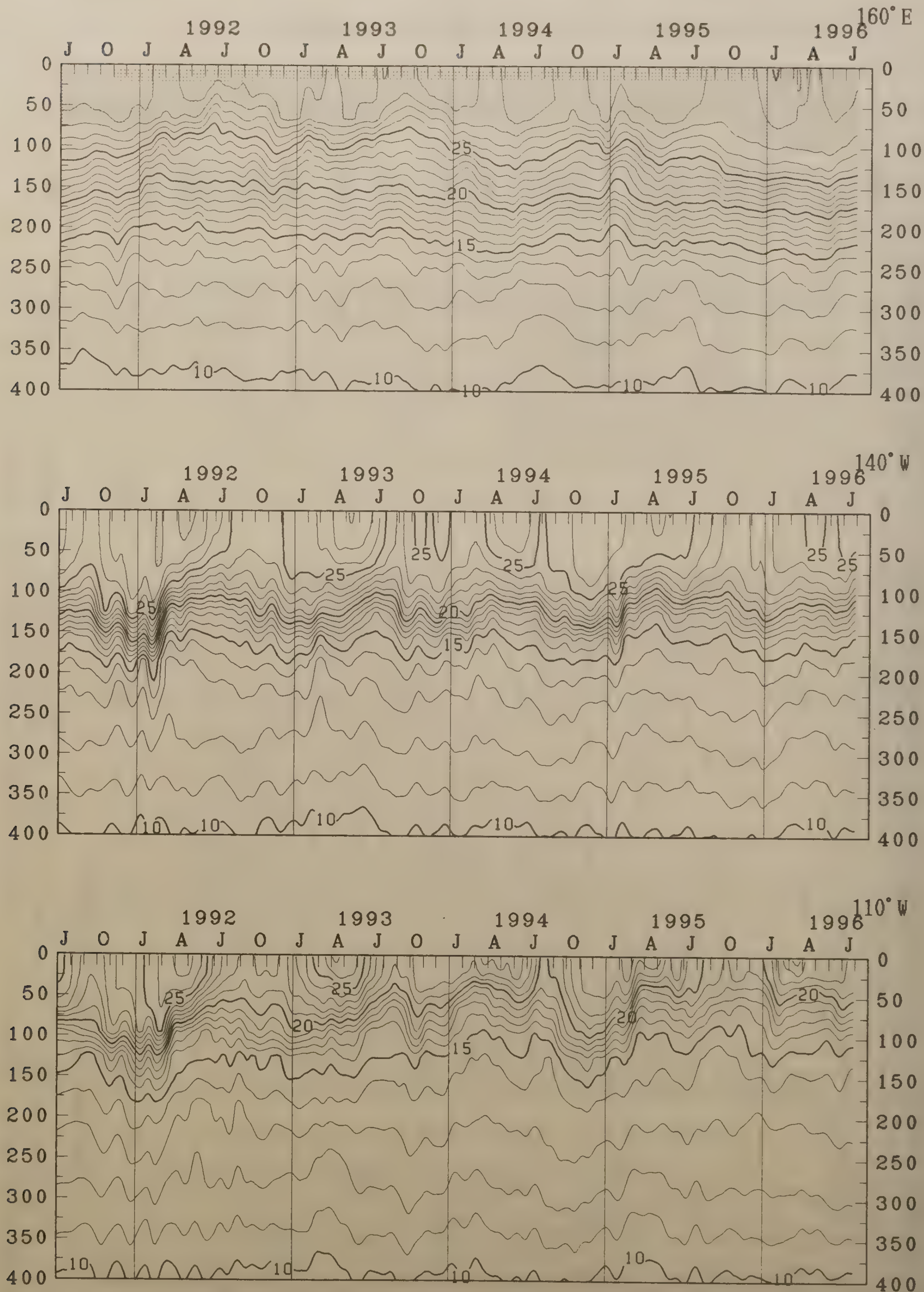
Fig.13 Time-longitude section of SSTs along the equator (2°N-2°S) in the global ocean.　Contour interval is 1°C, with thick contour lines at 25 and 30°C. SST values greater than 28°C are spotted and values less than 23°C are shaded.

Time-Longitude Section of SST Anomalies



第14図 赤道に沿う海面水温偏差の時間－経度断面図

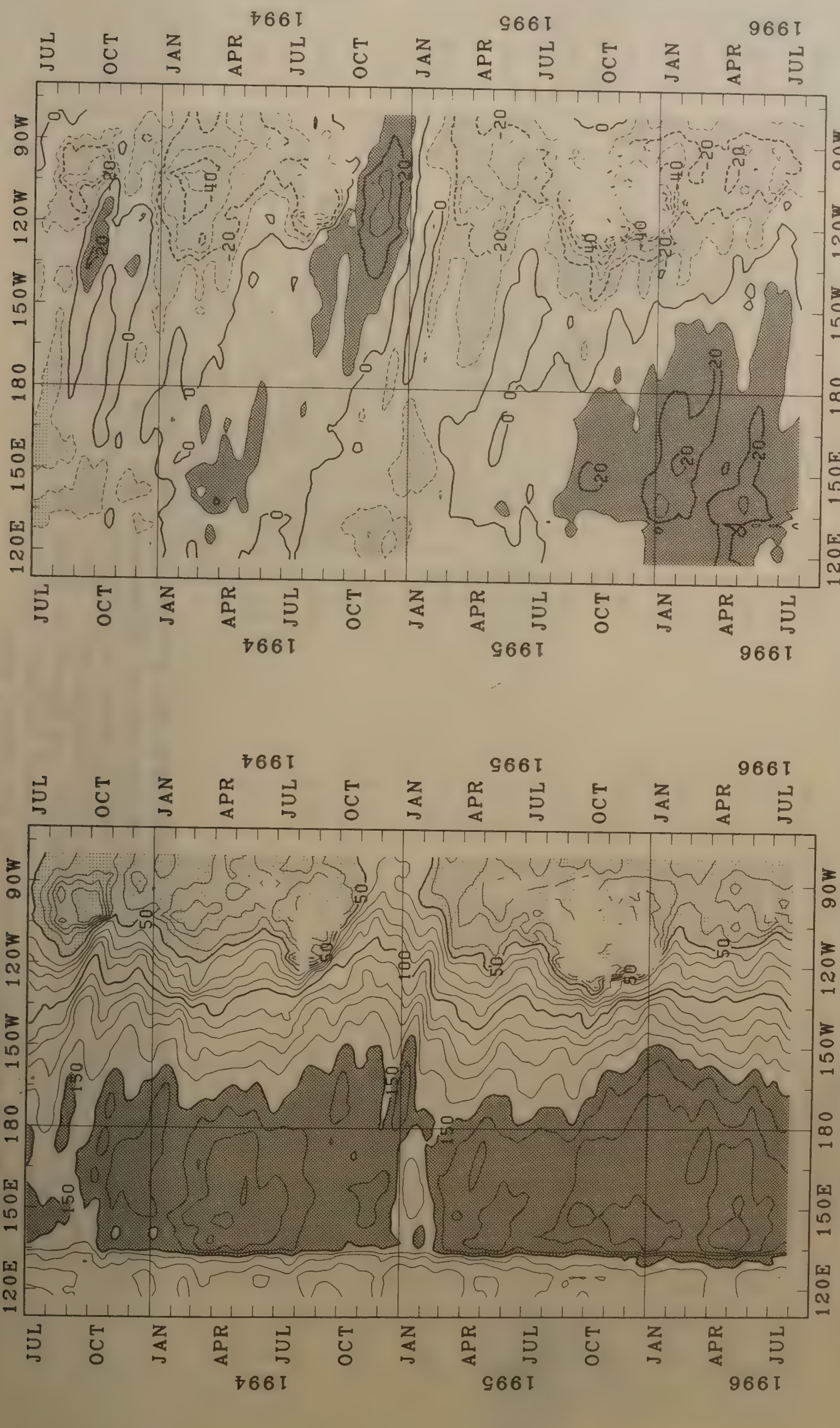
Fig.14 Time-longitude section of SST anomalies along the equator (2°N-2°S) computed from the JMA climatology (1961-1990). Contour interval is 1°C, with thick contour lines at +1°C and -1°C. Negative anomalies are spotted.



第15図　太平洋赤道域の表層水温の時間－深度断面図
（上：西部、中：中部、下：東部）

Fig.15 Time-depth sections of equatorial subsurface temperature for the western Pacific (top, 160°E), the central Pacific (middle, 140°W) and the eastern Pacific (bottom, 110°W). Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C. Values greater than 28°C are shaded.

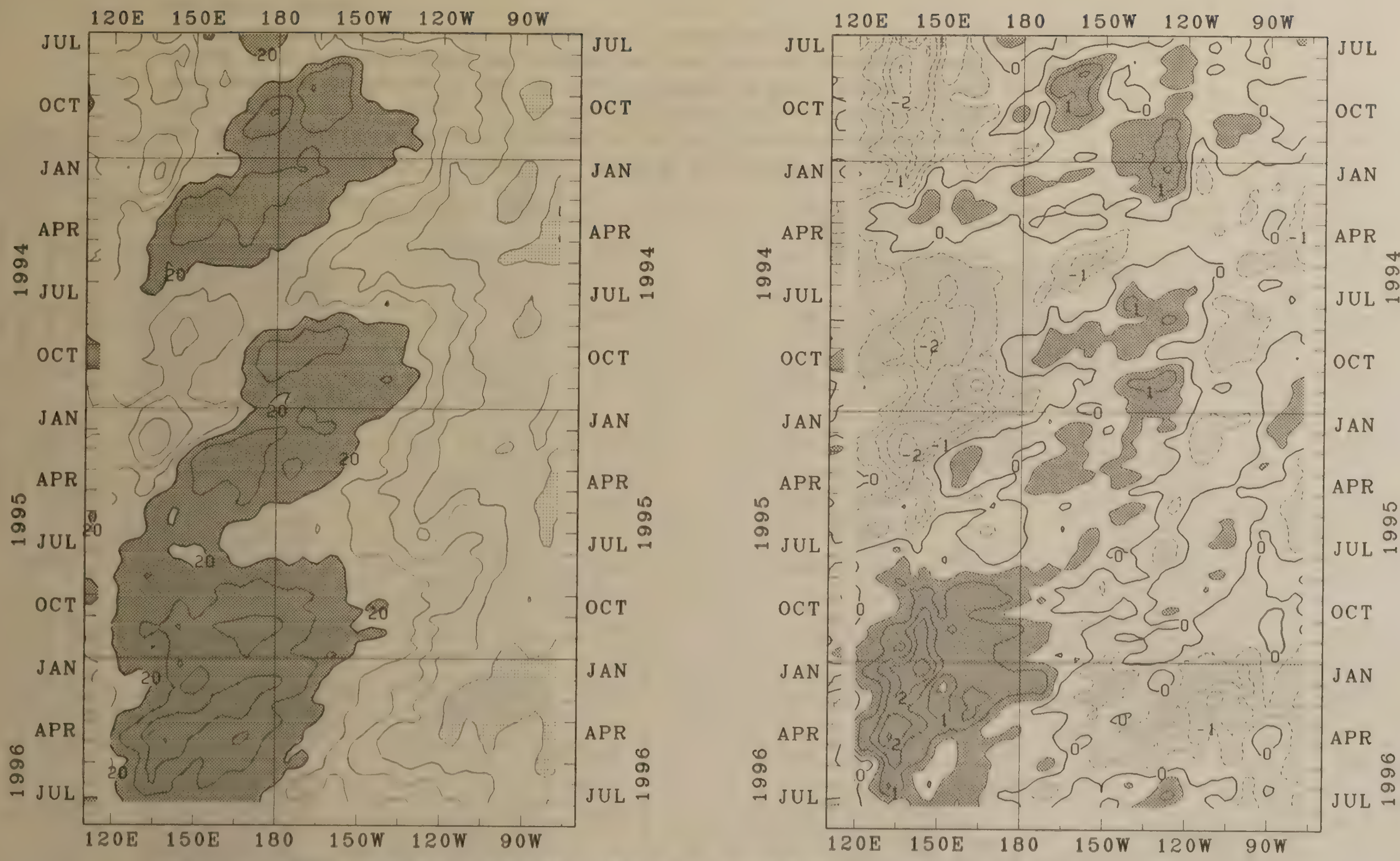
Time-Longitude Section of Depth of 20C & Anomalies (Eq.)



第16図　太平洋の赤道に沿う20℃深度（左）及び偏差（右）の時間－経度断面図

Fig.16 Time-longitude sections of depth of the 20°C isotherm along the equator (left) and anomalies (right) in the Pacific Ocean. Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 10m. Values in left panel greater than 150m are shaded and values less than 50m are spotted. Dashed contours in right panel indicate negative anomalies. Anomalies are computed from 1987-1995 base period means.

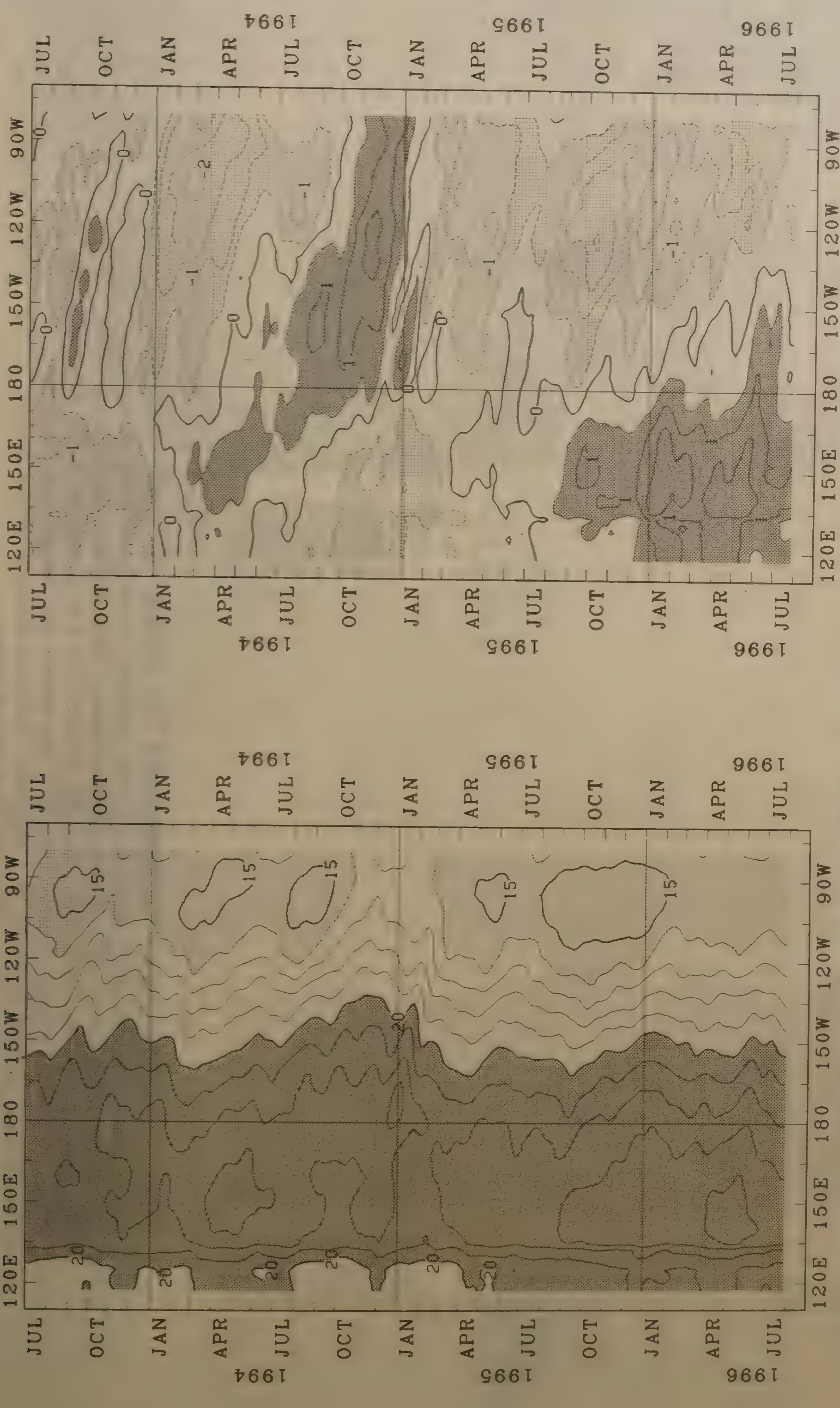
Time-Longitude Section of Ocean Heat Content & Anomalies (6N)



第17図　太平洋の北緯6度線に沿う海洋表層の貯熱量（左）及び偏差（右）の時間－経度断面図

Fig.17 Time-longitude sections of ocean heat content in the upper 260m along 6°N (left) and anomalies (right) in the Pacific Ocean. Data are derived from an Ocean Data Assimilation System of JMA. Contour interval is 1°C (left) and 0.5°C (right). Values in the left panel greater than 20°C are shaded and values less than 16°C are spotted. Dashed contours in right panel indicate negative anomalies. Anomalies are computed from 1987-1995 base period means.

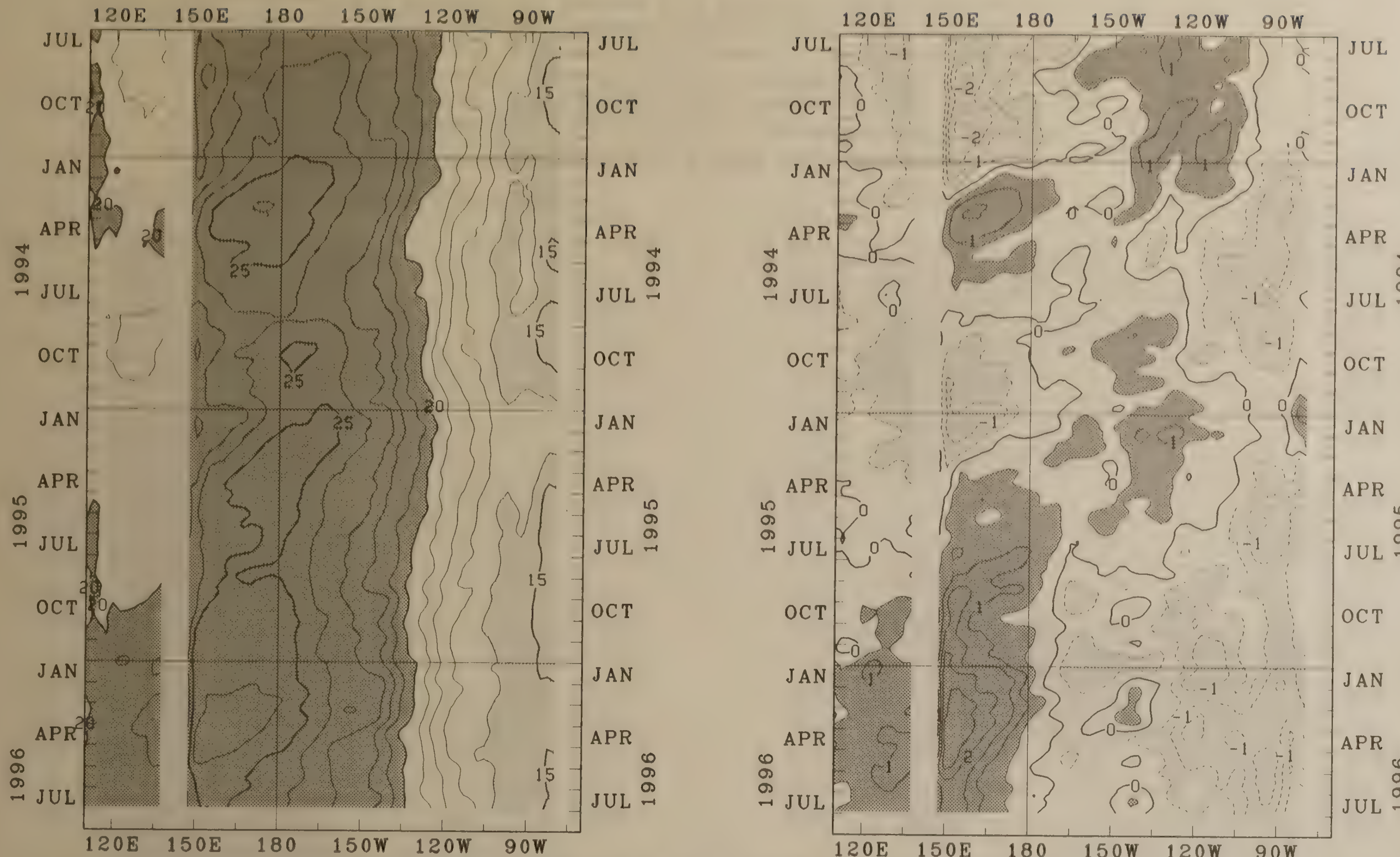
Time-Longitude Section of Ocean Heat Content & Anomalies (Eq.)



第18図　太平洋の赤道に沿う海洋表層の貯熱量（左）及び偏差（右）の時間－経度断面図

Fig.18 Time-longitude sections of ocean heat content in the upper 260m along the equator (left) and anomalies (right) in the Pacific Ocean. Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C (left) and 0.5°C (right). Values in the left panel greater than 20°C are shaded and values less than 16°C are spotted. Dashed contours in right panel indicate negative anomalies. Anomalies are computed from 1987-1995 base period means.

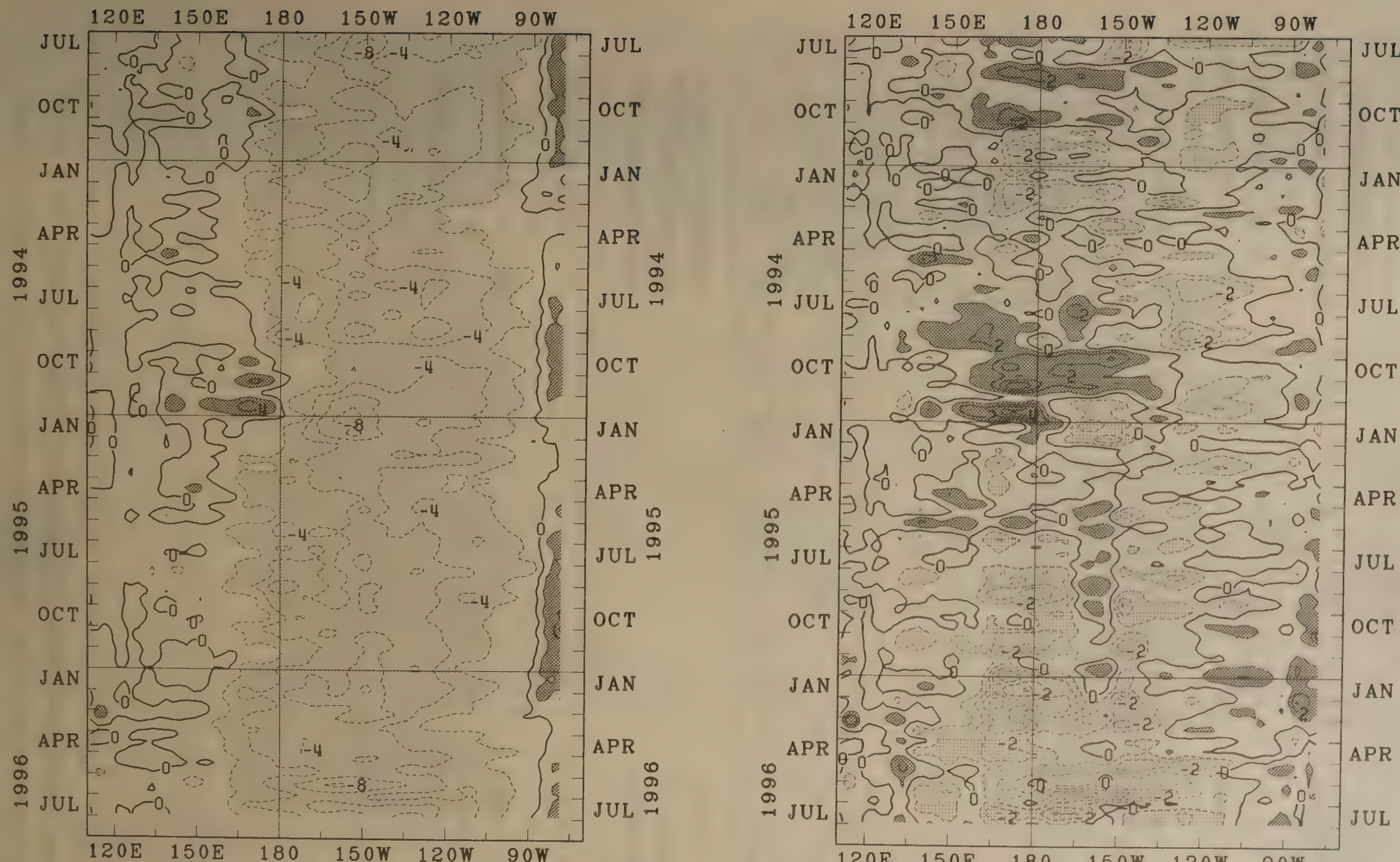
Time-Longitude Section of Ocean Heat Content & Anomalies (6S)



第19図　太平洋の南緯6度線に沿う海洋表層の貯熱量（左）及び偏差（右）の時間－経度断面図

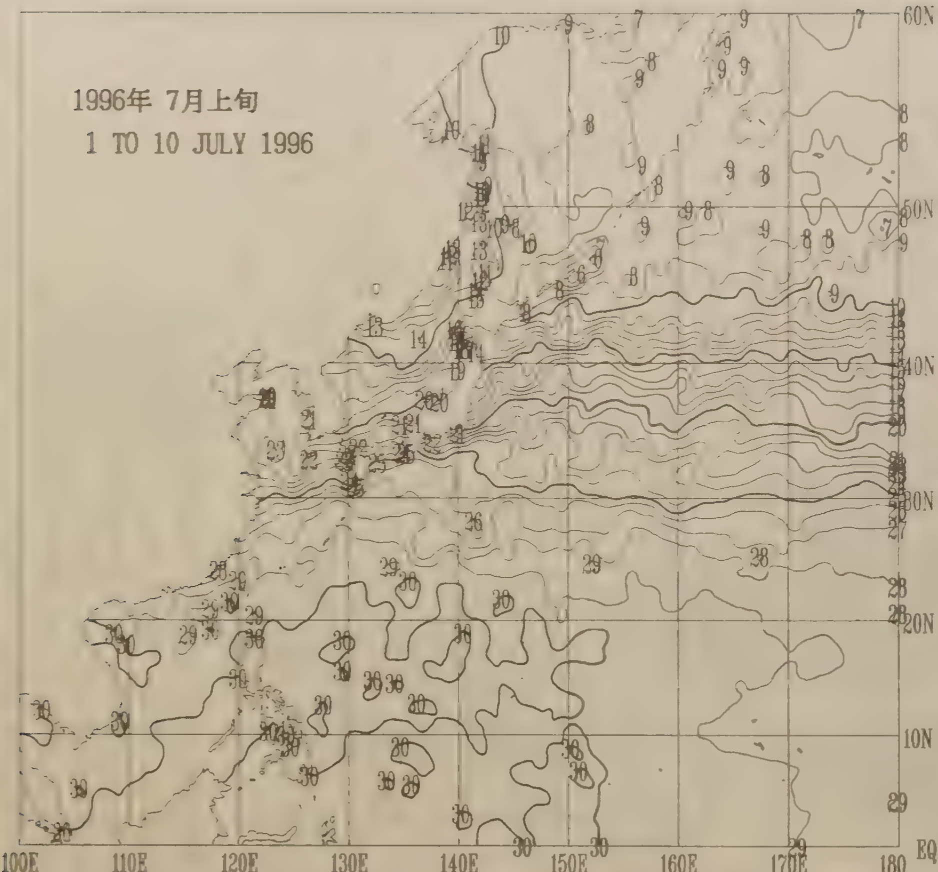
Fig.19 Time-longitude sections of ocean heat content in the upper 260m along 6°S (left) and anomalies (right) in the Pacific Ocean. Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C (left) and 0.5°C (right) Values in the left panel greater than 20°C are shaded and values less than 16°C are spotted. Dashed contours in right panel indicate negative anomalies. Anomalies are computed from 1987-1995 base period means.

Time–Longitude Section of Surface Zonal Wind Stress & Anomalies (Eq.)



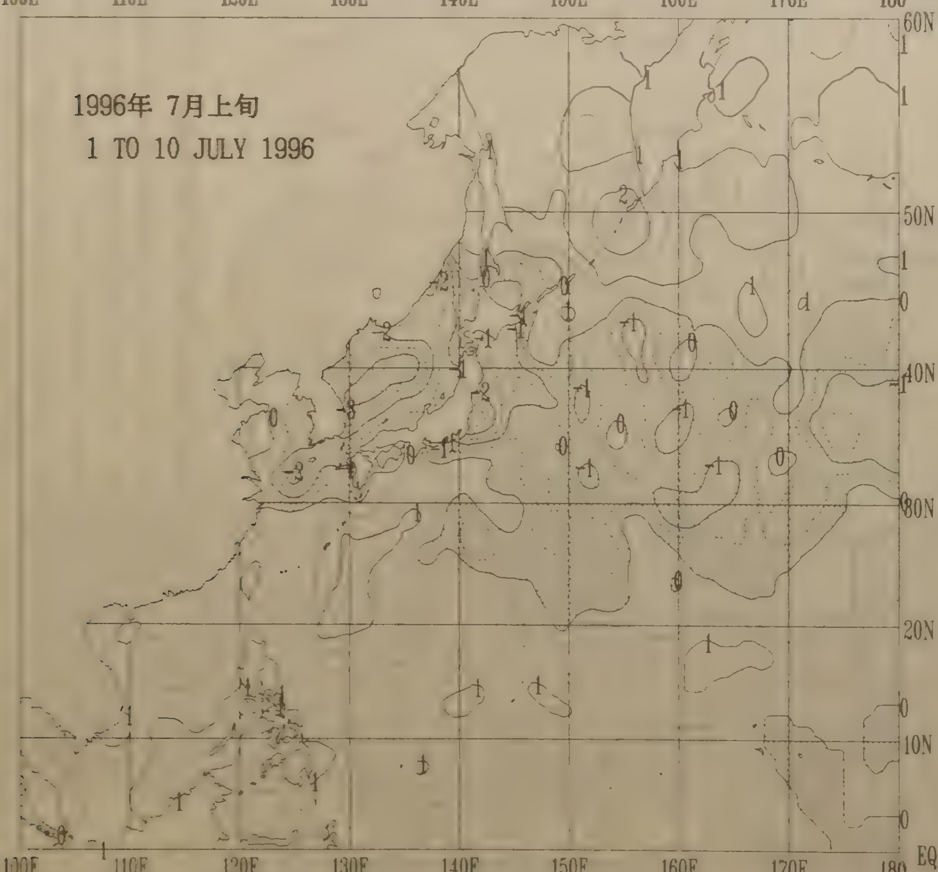
第20図　太平洋の赤道に沿う海面の風応力の東西成分（左）及び偏差（右）の時間－経度断面図

Fig.20 Time-longitude sections of surface zonal wind stress along the equator (left) and anomalies (right) in the Pacific Ocean. Data are derived from the Atmospheric Global Data Assimilation System of JMA. Contour interval is 0.02N/m2 (left) and 0.01N/m2 (right). Dashed contours indicate easterlies (left) and easterly anomalies (right). Anomalies are computed from 1987-1995 base period means.



旬平均沿岸水温(℃)
Coastal Water Temperature

地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	28.9	0.0
御前崎(47655)	21.2	-1.9
八丈島(47678)	25.0	1.0
小名浜(47598)	15.0	-2.3
宮　古(47585)	14.4	0.2
江　差(47428)	17.4	-
浜　田(47755)	23.2	-

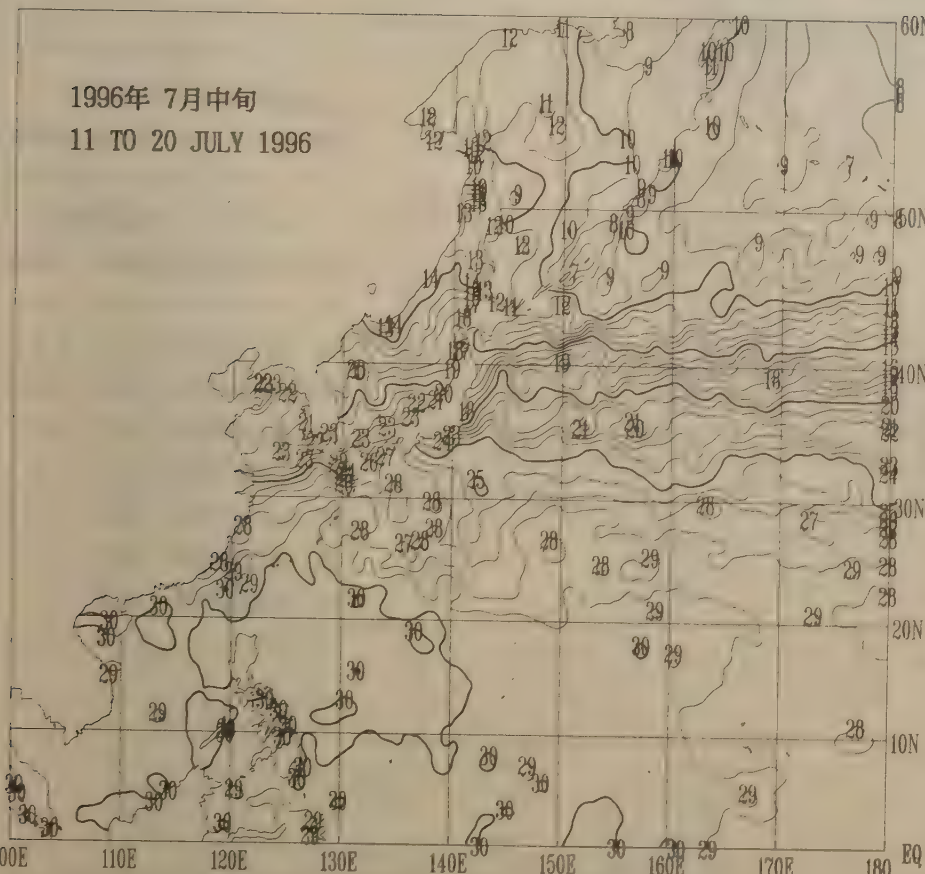


海洋気象ブイロボット
旬平均海面水温(℃)
Ocean Data Buoy SST

地点	位置	水温
日本海	37.9N,134.5E	19.7
四国沖	29.0N,135.0E	28.2
東シナ海	28.2N,126.3E	28.0

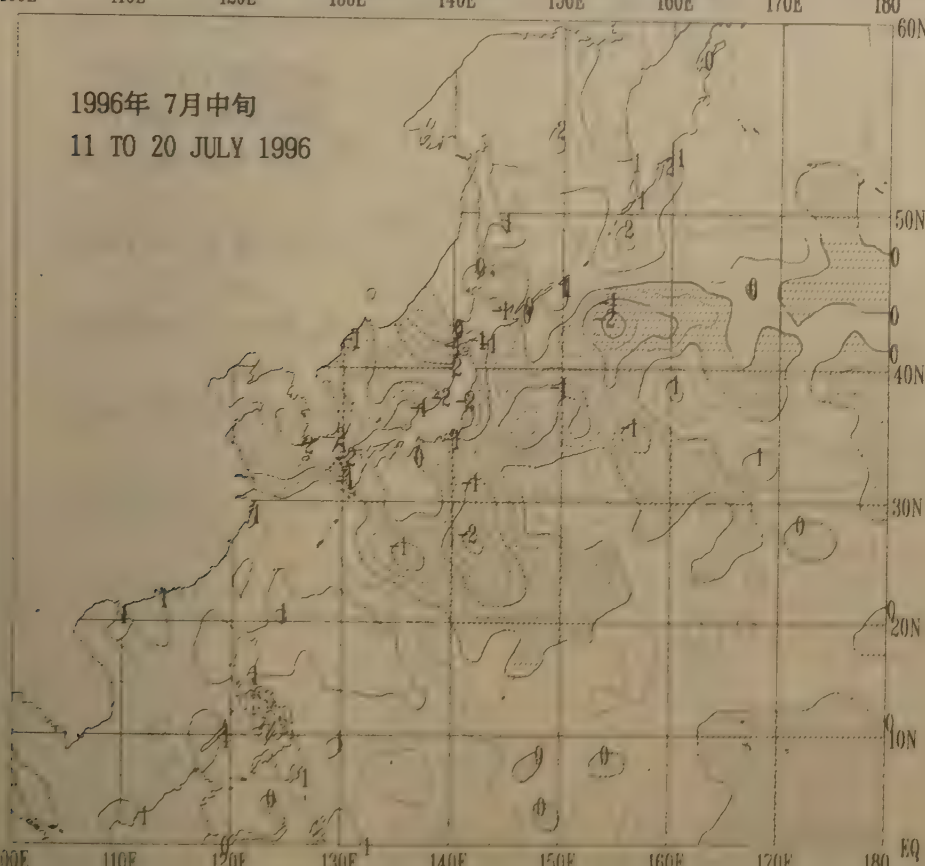
第21図 北西太平洋旬平均海面水温図(上)及び偏差図(下)(1996年 7月上旬)

Fig.21 Ten-day mean SSTs in the western North Pacific (top) and anomalies (bottom) for the 1st ten-day period in JUL 1996. Anomalies are computed from the JMA climatology (1961-90). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown as broken lines. Negative anomalies are spotted.



旬平均沿岸水温(℃)
Coastal Water Temperature

地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	29.8	0.6
御前崎(47655)	22.8	-1.3
八丈島(47678)	25.7	0.9
小名浜(47598)	17.9	-0.1
宮　古(47585)	16.2	1.1
江　差(47428)	18.7	-
浜　田(47755)	23.8	-

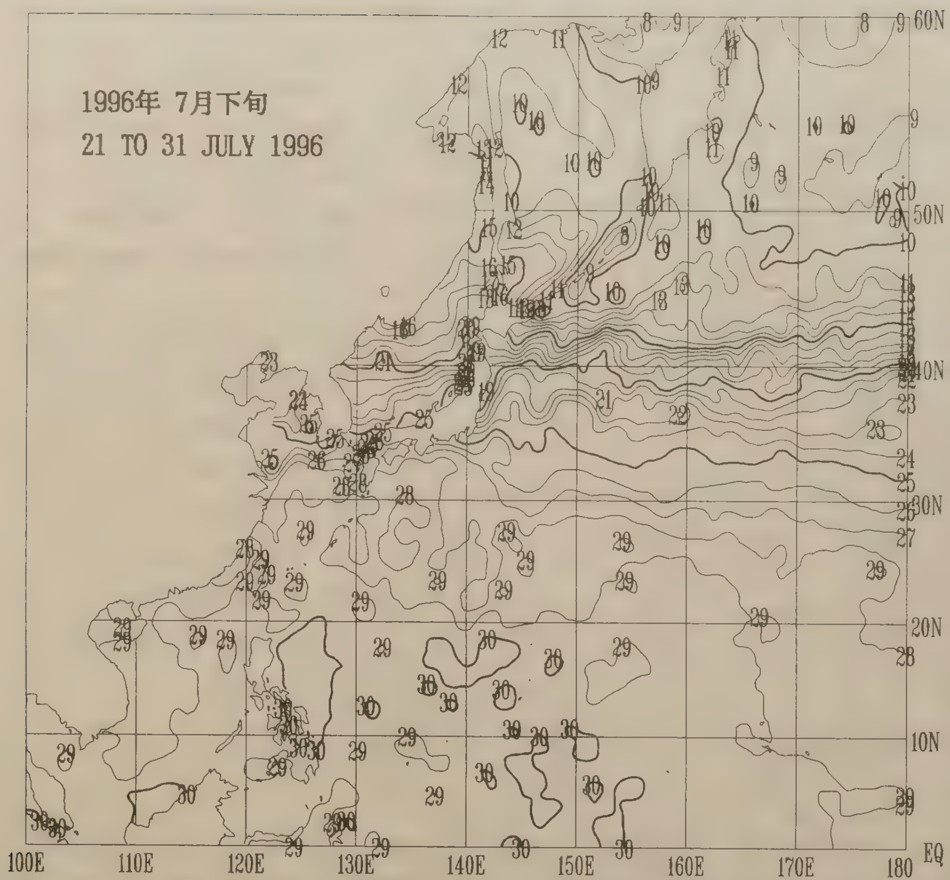


海洋気象ブイロボット
旬平均海面水温(℃)
Ocean Data Buoy SST

日本海	37.9N,134.5E	21.4
四国沖	29.0N,135.0E	28.4
東シナ海	28.2N,126.3E	29.5

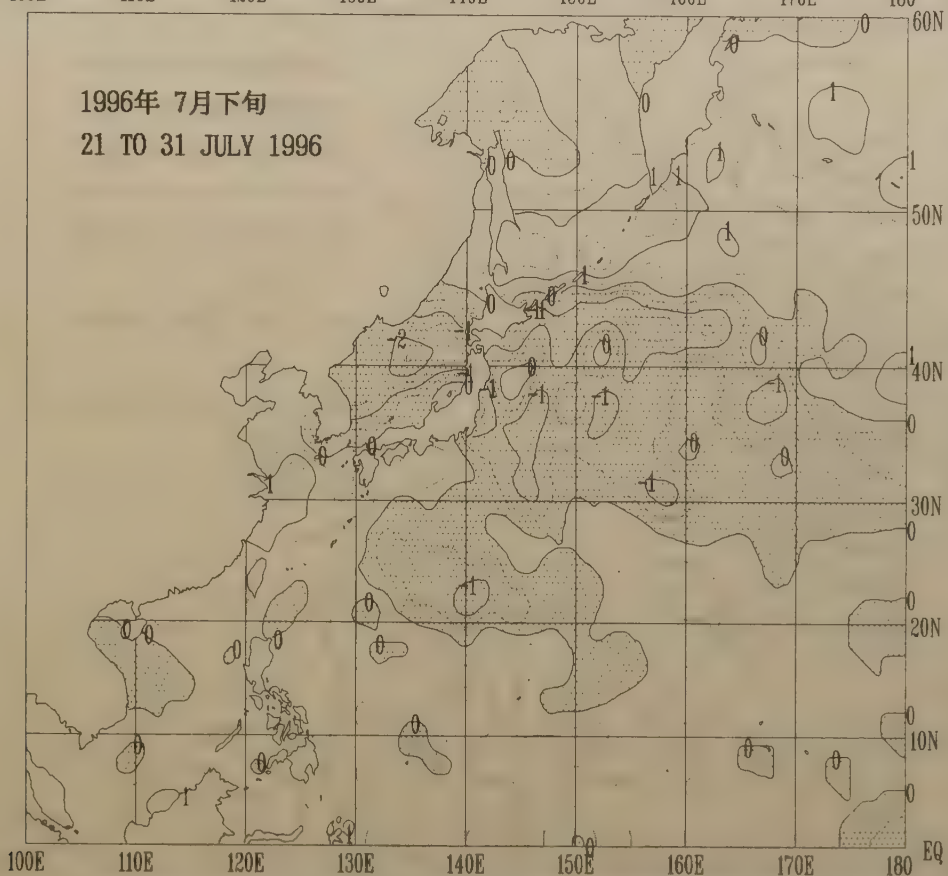
第22図 北西太平洋旬平均海面水温図(上)及び偏差図(下)(1996年 7月中旬)

Fig.22 Ten-day mean SSTs in the western North Pacific (top) and anomalies (bottom) for the 2nd ten-day period in JUL 1996. Anomalies are computed from the JMA climatology (1961-90). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown as broken lines. Negative anomalies are spotted.



旬平均沿岸水温(℃)
Coastal Water Temperature

地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	29.1	-0.1
御前崎(47655)	24.5	-0.9
八丈島(47678)	26.7	0.9
小名浜(47598)	18.2	-1.6
宮　古(47585)	16.5	-0.2
江　差(47428)	20.7	-
浜　田(47755)	26.6	-

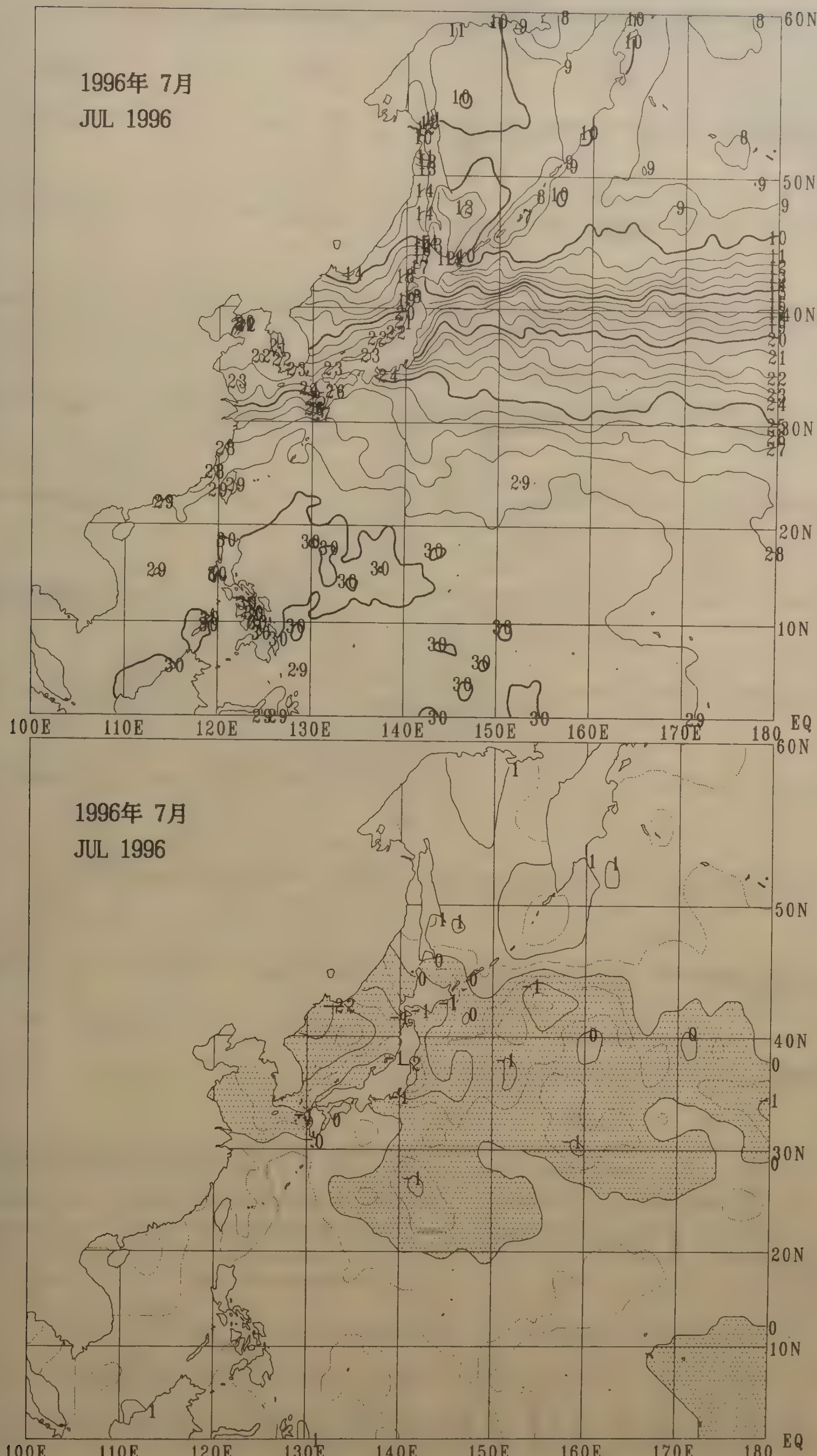


海洋気象ブイロボット
旬平均海面水温(℃)
Ocean Data Buoy SST

日本海	37.9N,134.5E	24.0
四国沖	29.0N,135.0E	28.5
東シナ海	28.2N,126.3E	29.5

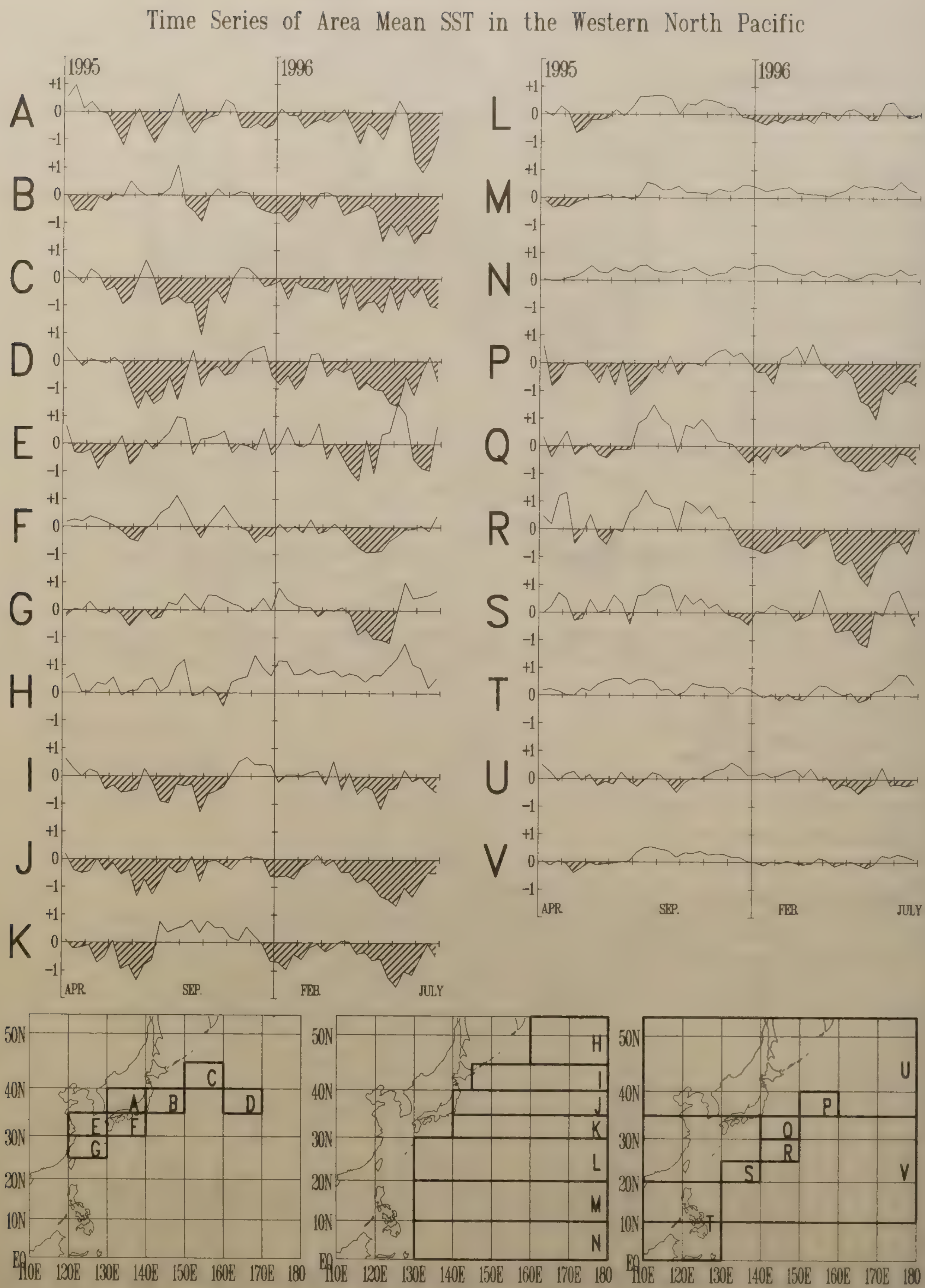
第23図 北西太平洋旬平均海面水温図(上)及び偏差図(下)(1996年 7月下旬)

Fig.23 Ten-day mean SSTs in the western North Pacific (top) and anomalies (bottom) for the 3rd ten-day period in JUL 1996. Anomalies are computed from the JMA climatology (1961-90). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown as broken lines. Negative anomalies are spotted.



第24図 北西太平洋月平均海面水温図(上)及び偏差図(下)(1996年 7月)

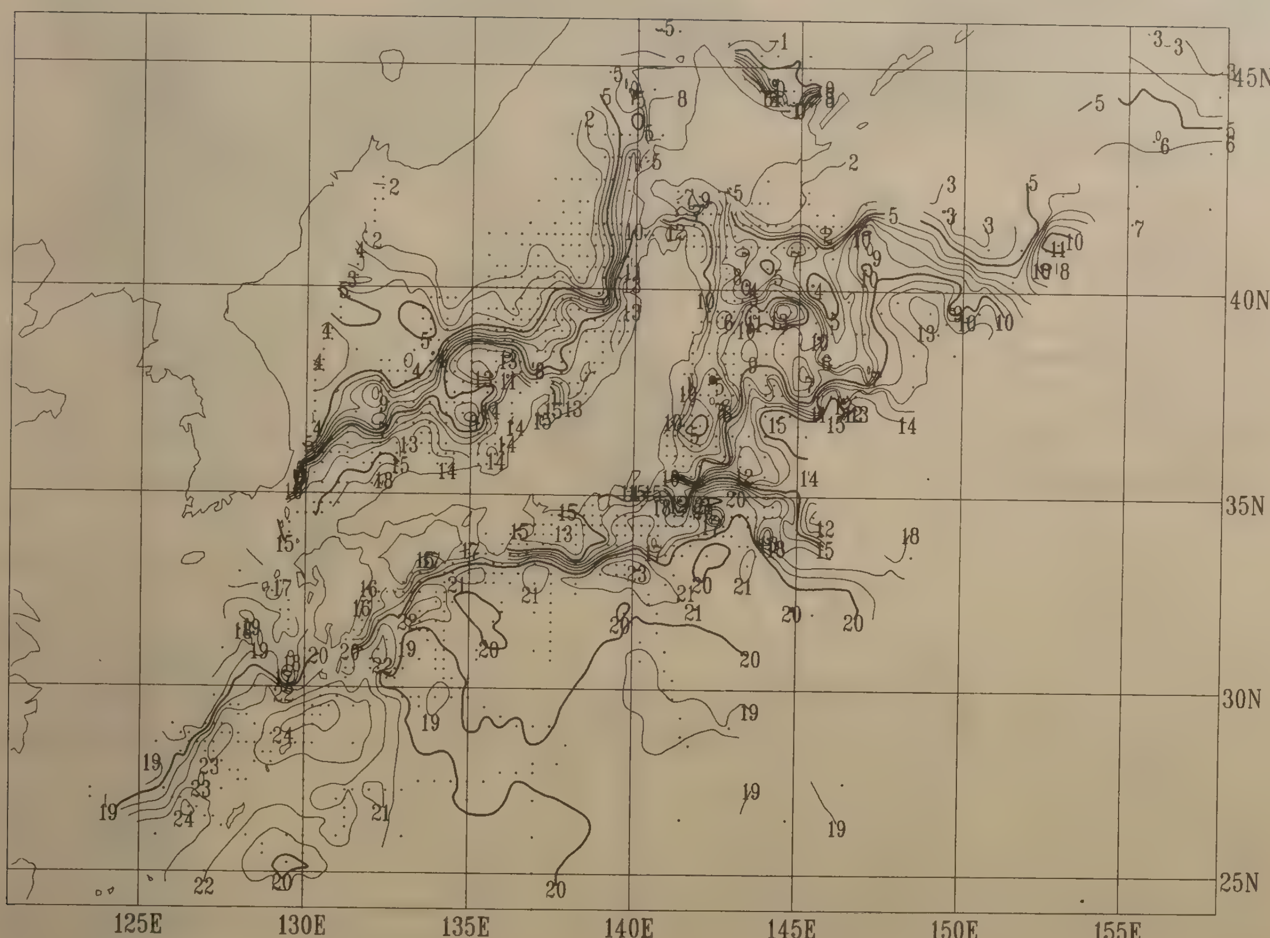
Fig.24 Monthly mean SSTs in the western North Pacific (top) and anomalies (bottom) for JUL 1996. Anomalies are computed from the JMA climatology (1961-1990). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown as broken lines. Negative anomalies are spotted.



第25図　北西太平洋旬平均海面水温平年偏差時系列図

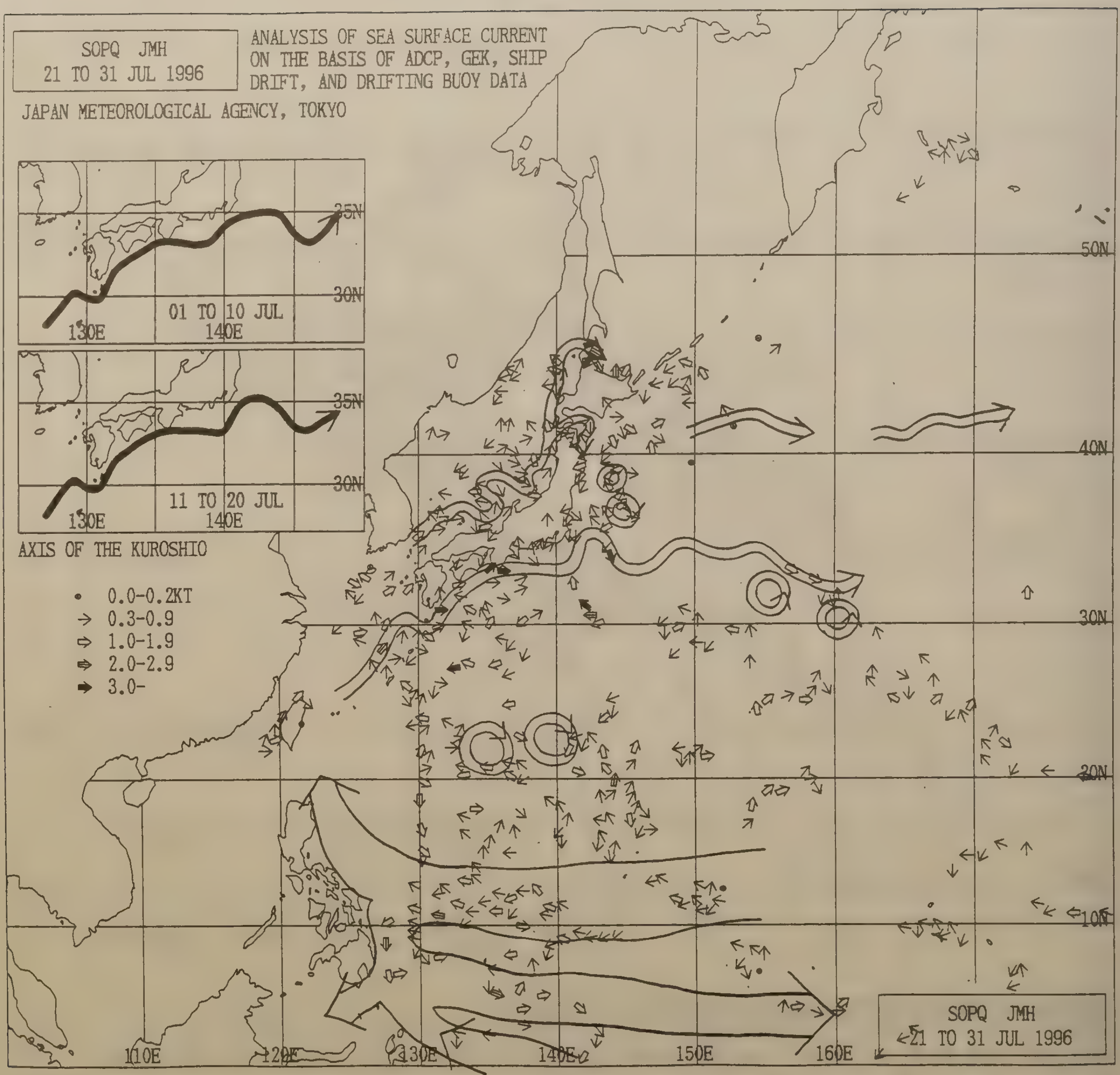
Fig.25 Time series of the ten-day mean sea surface temperature anomalies (°C) in the western North Pacific for the areas indicated at the bottom. Negative anomalies are shaded. Anomalies are computed from the JMA climatology (1961-90).

100m Temperatures in Seas Adjacent to Japan



第26図　日本近海表層水温(深さ100m)図 (1996年 7月)

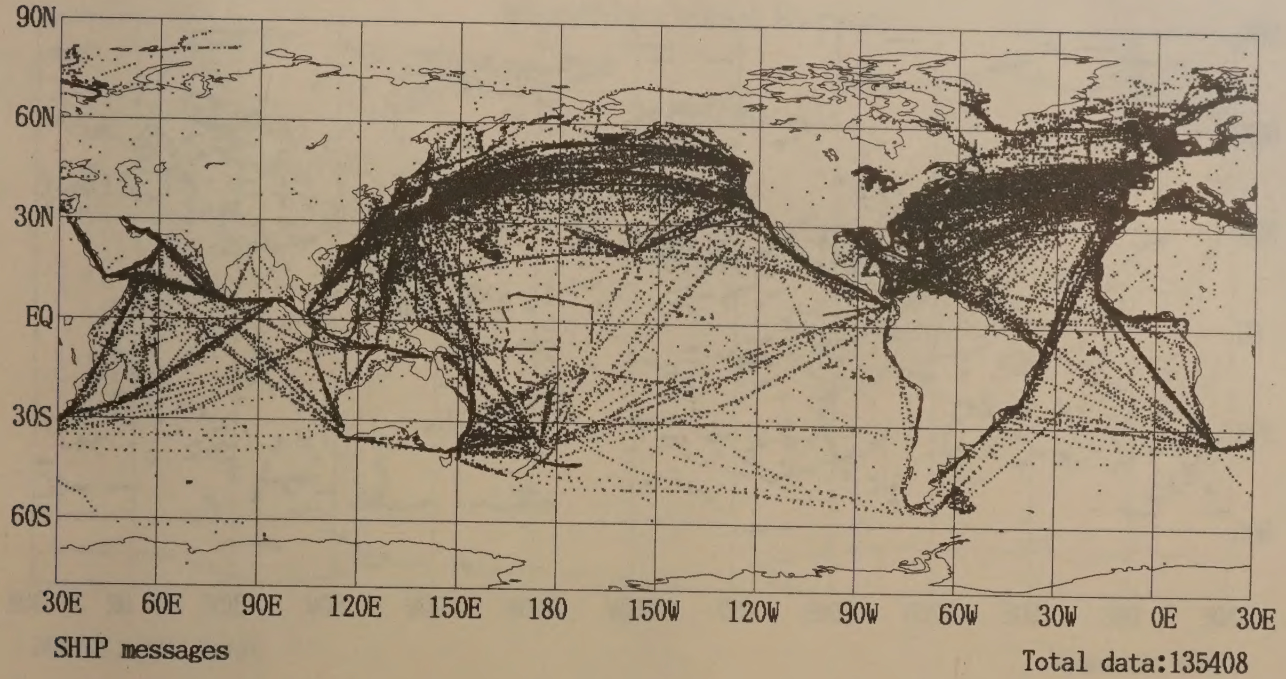
Fig.26 Subsurface (100m) temperatures in seas adjacent to Japan for JUL 1996. Contour interval is 1°C. Observation points are denoted by dots.

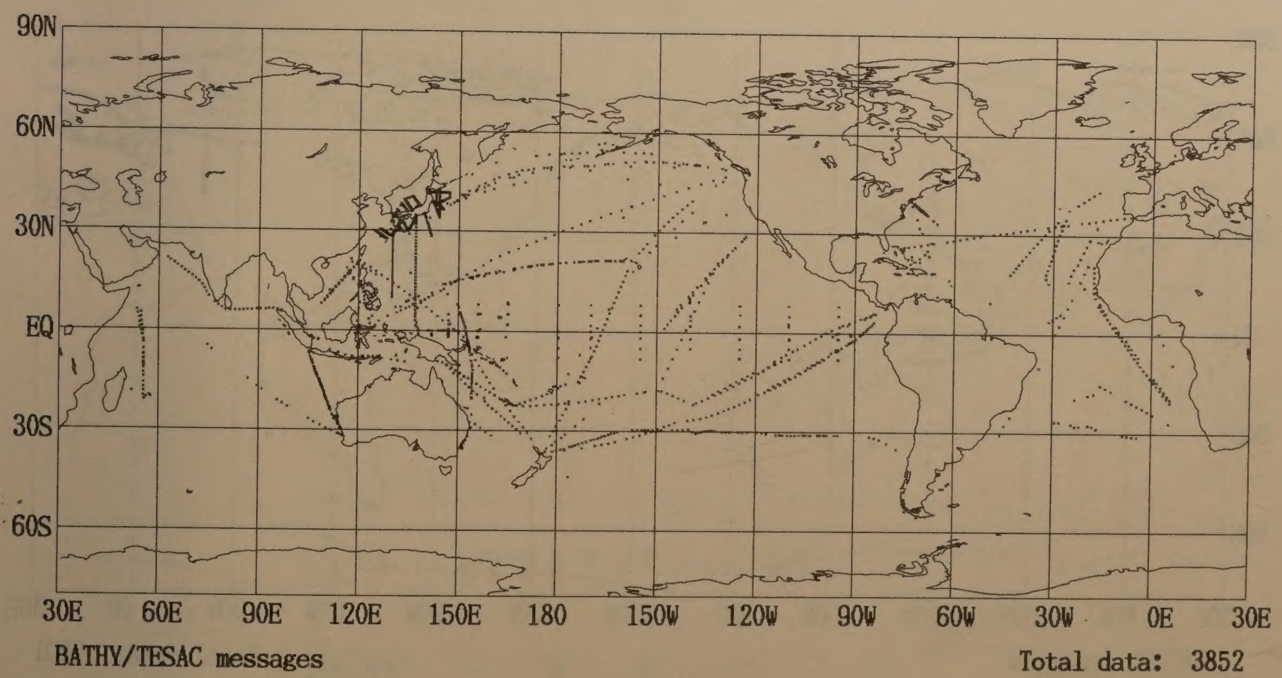


第27図　北西太平洋海流図（1996年 7月下旬）

Fig.27 Analysis of the sea surface current in the western North Pacific for the 3rd ten-day period in JUL 1996. Small arrows indicate sea surface currents measured with acoustic Doppler current profilers, GEKs deployed in research vessels, and ship drift by merchant ships/drifting buoys during the month. Major currents such as the Kuroshio and the North Equatorial Current are denoted by larger open arrows.

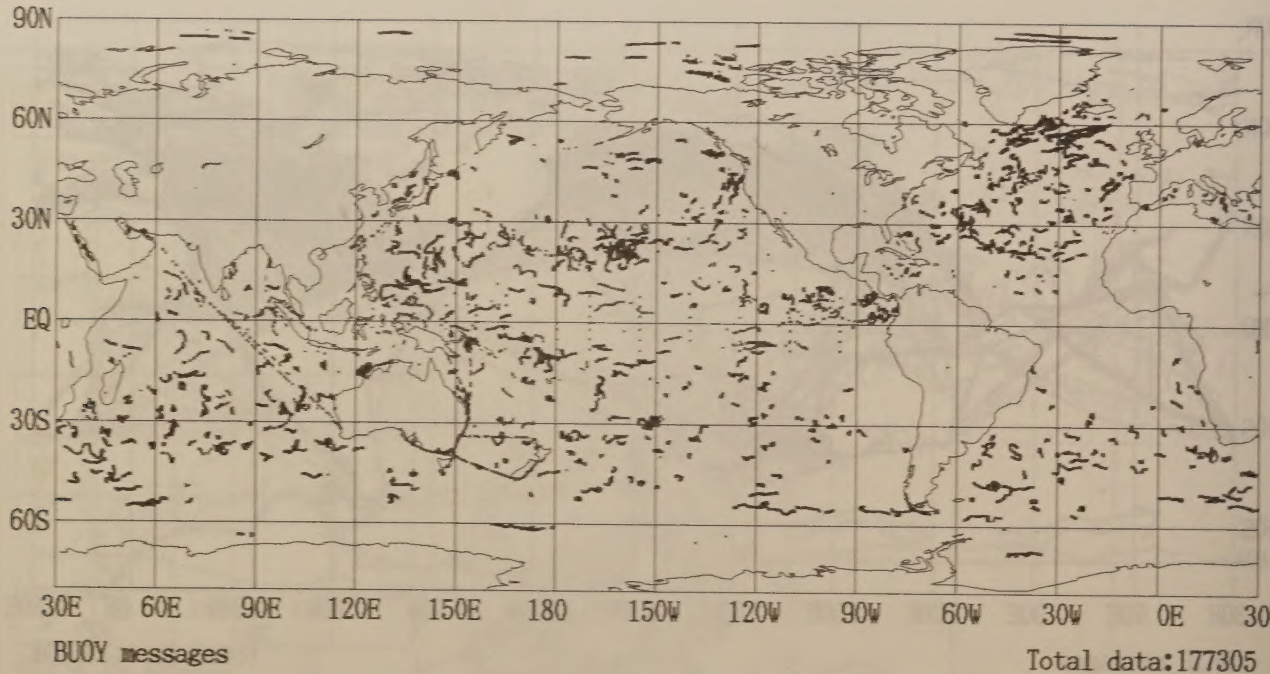
Geographical Distribution of Oceanographic Data

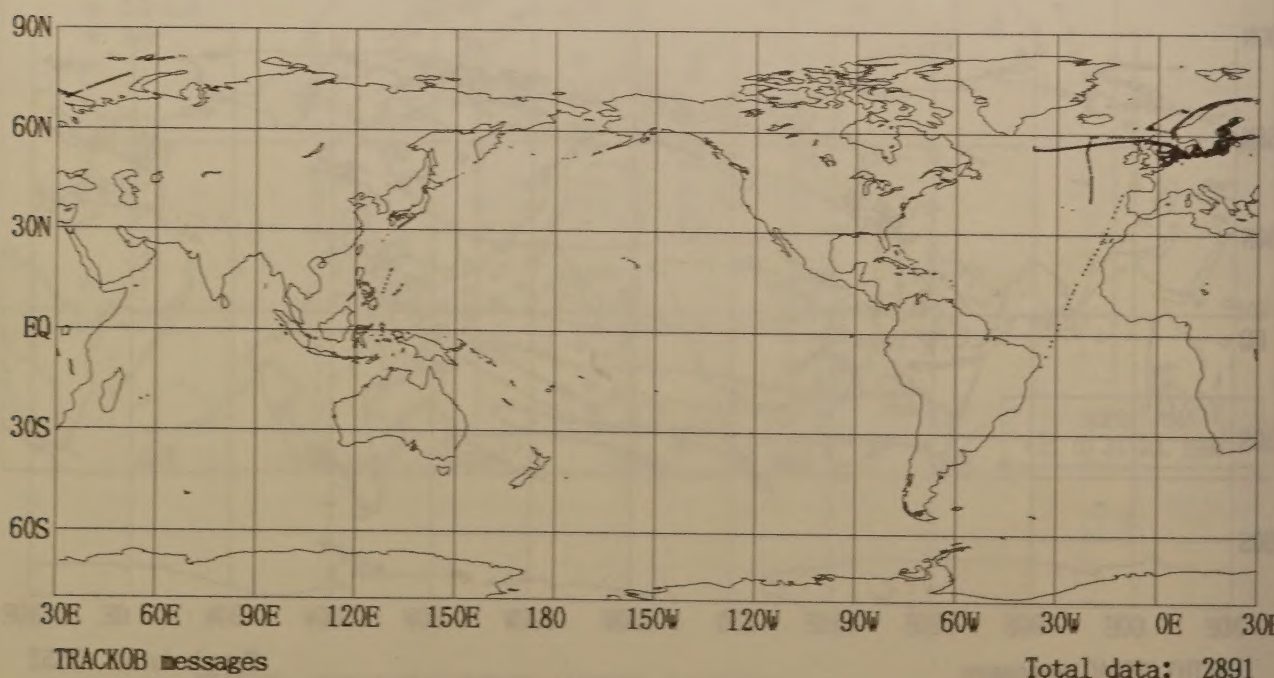




第28-1図　測点分布図(1996年 7月)

Fig.28-1 Geographical distribution of SHIP messages (SST data, top) and BATHY/TESAC messages (subsurface temperature data, bottom) for JUL 1996.





第28-2図　測点分布図(1996年 7月)

Fig.28-2 Geographical distribution of BUOY messages (buoy drift and SST data, top) and TRACKOB messages (ship drift and SST data, bottom) for JUL 1996.

気 象 庁 海 洋 月 報

Monthly Ocean Report

July 1996 (No. 43)

平成8年8月20日発行

編集兼	気　象　庁
発行所	東京都千代田区大手町1-3-4
印刷所	モリモト印刷株式会社 東京都新宿区東五軒町3-19